Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of the Commission's Rules to	)	MB Docket No. 03-185
Establish Rules for Digital Low Power	)	
Television, Television Translator, and	)	
Television Booster Stations and to Amend	)	
Rules for Digital Class A Television Stations	)	

COMMENTS OF
PRESERVE COMMUNITY PROGRAMMING COALITION

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EXECUTIVE SUMMARY

As the July 13, 2021 deadline approaches for low power television ("LPTV") stations to transition to digital, a single open question remains: whether to allow licensees that have invested in developing an audio service available on 87.7 FM to continue offering this analog audio service following the digital transition. While the issue itself is fairly discrete, the implications of how the Commission resolves this issue are substantial. Audio services on 87.7 FM provide a critical source of news, information, and entertainment programming to underserved communities. Among the programming options available on 87.7 FM stations are Spanish-language religious programming for Southern California's large Hispanic community, unique and distinctive foreign language and community-oriented programming for growing ethnic communities across the country, and innovative music programming formats addressing demographics not currently served by other radio stations.

From a policy standpoint, the public interest benefits of preserving this additional source of programming are indisputable. Millions of listeners tune to stations available on 87.7 FM each week for inspirational programming, to connect with public officials, to forge deeper bonds with their communities, and to find both new and familiar voices. These 87.7 FM programming services contribute to the FCC's efforts to utilize the public airwaves to promote diversity and localism. The public interest would be immeasurably harmed if the Commission were to allow this valuable resource to disappear, leaving listeners not only with one fewer voice, but without a service whose foundation is built upon providing niche programming that fills a void in the markets it serves.

Fortunately, there are no legal or technical barriers to extending the ability of currently operating analog channel 6 LPTV stations to offer an analog 87.7 FM audio service after the

LPTV digital transition. By simply modifying two rules applicable to digital LPTV stations, the Commission can facilitate the ability of currently operating LPTV stations to offer a dual digital TV/analog audio service that would both hasten the transition to digital television while preserving an analog audio service upon which listeners have come to depend. Specifically, the FCC can amend its rules to allow currently operating analog channel 6 LPTV stations to: (1) continue analog transmissions after the digital transition on a supplemental basis; and (2) utilize independent aural and visual transmitters, all subject to the existing requirement that they transmit a digital video signal that can be received by an ATSC receiver. And the FCC can narrowly tailor these rules so they only apply to stations currently operating on analog channel 6, thereby preserving existing services upon which listeners have come to depend without imposing an additional burden on the Commission.

Although some parties have expressed concerns in the past about interference from channel 6 stations broadcasting a dual digital TV/analog audio signal, these concerns are both exaggerated and easily managed. There currently are dozens of LPTV stations transmitting analog audio carriers available on 87.7 FM, yet the PCPC is not aware of a single instance of actual interference between the audio signal transmitted by these analog LPTV stations and nearby FM stations on Channels 201 or 202. Nevertheless, the FCC can adopt both contour overlap restrictions and prohibitions on actual interference that would eliminate any theoretical risk of interference between an 87.7 FM audio carrier and nearby NCE FM stations.

In short, the Commission both can and should modify its rules to ensure that listeners can continue to receive valuable analog programming services on 87.7 FM following the LPTV digital transition. Through these comments, the PCPC addresses a number of the technical and legal issues that will allow the FCC to preserve this important public service.

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COMMENTS OF
PRESERVE COMMUNITY PROGRAMMING COALITION

The Preserve Community Programming Coalition ("PCPC"),[1] an ad hoc group of broadcasters who utilize the unique video and audio capabilities of analog channel 6 to broadcast programming that can be received both on televisions tuned to channel 6 and on radios tuned to 87.7 FM, hereby submits these Comments in response to the Media Bureau's Public Notice seeking to refresh the record in the above-referenced proceeding.[2]

I. INTRODUCTION

The members of the PCPC appreciate the Media Bureau's recognition that the FCC must act now to ensure that listeners will continue to receive valuable audio services on 87.7 FM when the existing analog low power television ("LPTV") stations providing these services transition to digital by July 2021. Members of the listening public—particularly those in underserved

[1] The members of the Preserve Community Programming Coalition are Hombre Nuevo Inc. d/b/a Guadalupe Radio, Metro TV, Inc., Signal Above LLC, Syncom Media Group, Inc., Venture Technologies Group, LLC, and Weigel Broadcasting Co.

[2] *Media Bureau Seeks to Update the Record on the Operation of Analog Radio Services By Digital LPTV Stations As Ancillary or Supplementary Services*, Public Notice, MB Docket No. 03-185, DA-19-1231 (rel. Dec. 4, 2019) (the "*87.7 Public Notice*").

populations—have come to rely on audio services provided by LPTV licensees on 87.7 FM, which include multilingual programming, multiethnic programming, locally-produced programming, and unique program formats that are not available on any other station in the market. Now, as the stations providing these unique programming options prepare to transition to a digital video format that will allow them to offer exciting new video services, it is important that the Commission not leave behind the listeners that have come to depend on the innovative analog audio services currently available on 87.7 FM.

In these comments, the PCPC addresses a number of questions raised by the Commission in the *87.7 Public Notice*. First, the PCPC demonstrates why preserving an audio service that provides niche programming to underserved communities is in the public interest. Next, the PCPC explains how the FCC can extend this valuable service on a narrowly targeted basis by making just two changes to the existing rules for digital LPTV stations. Third, the PCPC explains how the Commission can ensure that an analog audio service on 87.7 FM will not interfere with co-channel DTV operations or adjacent channel NCE FM operations. Fourth, the PCPC addresses a number of issues that the FCC determined are unresolved, including how the service is consistent with the Communications Act, what limited rules should extend to an analog audio carrier transmitted by a digital LPTV station, and why the authorization to transmit an analog audio carrier should attach to the station and remain fully transferable. Finally, the PCPC discusses what fees the FCC can and should impose on analog audio transmissions by digital channel 6 LPTV stations.

The PCPC and its members are prepared to expend the resources necessary to ensure that listeners will continue to receive audio broadcasts on 87.7 FM without interruption and look forward to the Commission adopting the necessary rules to preserve this valuable program

service.

II. BACKGROUND

For more than half a century, listeners have been able to enjoy "TV on the radio" on 87.7 FM.[3] Some of America's most iconic stations, including WPVI-TV in Philadelphia, KOIN in Portland, WTVJ in Miami, as well as dominant local stations like and WLNE-TV in New Bedford, Massachusetts, WRGB in Schenectady, New York, WOWT in Omaha, Nebraska, and WPSD-TV in Paducah, Kentucky, transmitted their analog signals on television channel 6, allowing the public to consume newscasts, sports, and entertainment programming in their cars, at work, and at home by tuning their radios to 87.7 FM.

When full power television stations completed their transition to digital in 2009, the ability to receive those stations on 87.7 FM was eliminated. Although many legacy channel 6 stations expressed an interest in utilizing an analog audio carrier to preserve their 87.7 FM signals, program rights, rather than technical barriers, prevented them from doing so.[4] Specifically, these legacy full power channel 6 stations only had authority to transmit much of their program content on television. When reception on 87.7 FM was merely incidental to an analog television broadcast, it fell within the scope of their rights. Because, after the digital transition, an analog audio carrier would have required an independent transmission, licensees

[3] *See, e.g.*, John Rogers, *Ask John- Why Did WCTV Stop Broadcasting on the Radio?*. WCTV.tv (Jul. 19, 2009), https://www.wctv.tv/home/headlines/51136947.html (last visited Jan. 9, 2020) (explaining that "[s]ince WCTV went on the air in the 50s, we could be heard on the radio").

[4] *See* James E. O'Neal, *TV and the Mystique of Channel 6*, Radio World (Apr. 14, 2009), *available at* https://www.radioworld.com/news-and-business/tv-and-the-mystique-of-channel-6; WOWT.com, *UPDATE: What Happened to WOWT on 87.7* (Mar. 5, 2009), *available at* https://www.wowt.com/home/headlines/40804422.html.

would have needed to obtain additional rights for the analog audio feed.[5] This barrier ultimately proved insurmountable for legacy full power channel 6 stations.

At around the time of the full power digital transition, many LPTV licensees recognized an opportunity to fill a void by supplementing their analog video broadcasts, for which viewership would be declining, with dedicated audio programming targeting underserved populations. One of the first LPTV stations to provide an audio stream specifically targeting listeners on 87.7 FM was WNYZ-LP, New York, New York. WNYZ-LD broadcast silent films starring Charlie Chaplin and Buster Keaton on its video stream while experimenting with a variety of programming formats on its audio stream, including Russian language programming, dance music, independent music, Hindi-language programming, and Korean-language programming.

According to the FCC's Licensing and Management System, there are 40 currently operating analog channel 6 LPTV stations and an additional 11 analog channel 6 TV translator stations. Members of the PCPC are aware of 29 such stations that have harnessed the unique dual capabilities of channel 6 to supplement their video signals with aural services intended for reception on 87.7 FM.[6] These stations have invested considerable time and resources to develop new program services that expand the diversity of voices available in each of their markets.

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[5] *See* Bob Fernandez, *Digital Switch Cost 6ABC Its Radio Audience*, The Philadelphia Inquirer (July 2, 2019), *available at* https://www.inquirer.com/philly/business/technology/20090702_Digital_switch_cost_6ABC_its_radio_audience.html ("One problem is that if 6ABC were to broadcast its content specifically for radio, the Philadelphia TV station would have to secure new intellectual-property rights. Under the pre-June 12 broadcast situation, people could hear the 6ABC shows basically by accident. So 6ABC did not have to acquire intellectual-property rights to be heard on radio.").

[6] A list of stations licensed and operating on analog channel 6 is include as Exhibit A.

Listeners have come to rely on these 87.7 FM audio services for niche programming that is responsive to their needs and that fills a void in the local market. By way of example:

- KZNO-LP, Big Bear Lake, California (Los Angeles) and KRPE-LP, San Diego, California broadcast Guadalupe Radio, a Spanish-language program service that educates, informs, and transforms society through faith-based Christian broadcasting.
    - Guadalupe Radio's primary audience consists of Central American immigrants, many of whom utilize Guadalupe Radio as their local parish.
    - Guadalupe Radio has an immense reach, with more than 3.8 million Facebook followers and annual live events that regularly draw tens of thousands of listeners.
- KXDP-LP, Denver, Colorado broadcasts La Invasora, a locally-produced, community oriented program format that includes Spanish-language news, traffic, and weather reports.
    - KXDP-LP provides free air time for Alcoholics Anonymous, church events, health fairs, and fundraisers for local non-profit organizations.
    - KXDP-LP provides a unique community resource, delivering information on request to listeners who lack competency with social media and the Internet.
- WDCN-LP, Fairfax, Virginia (Washington, D.C.) broadcasts La Nueva, a Spanish-language news and talk format with a particular focus on the Washington, D.C. area's large Central American community.
    - WDCN-LP is the second largest Hispanic radio station in the Washington, D.C. market, with more than 10,000 weekly listeners.
    - In addition to providing music programming targeted to the Central American audience, WDCN-LP also broadcasts a daily news talk show, providing a forum for the Hispanic community to interact with elected officials and other local newsmakers.
    - WDCN-LP helps connect listeners with their homeland by providing regular live broadcasts from El Salvador.
    - WDCN-LP is also the Spanish language home for Baltimore Ravens football in the Washington, D.C. market.
    - WDCN-LP is committed to the communities it serves, regularly holding fundraisers for important local causes including crisis support for area families, buying Christmas presents for low-income families, supporting local

cancer patients, and providing support to leading charities such as St. Jude's Children's Hospital.

- WLFM-LP, Cleveland, Ohio broadcasts Mega 87.7 FM, a Spanish-language music format and the Spanish-language radio home of the Cleveland Browns and Cleveland Cavaliers.

    - Chairman Pai was so impressed by Rafa El Alcalde's call during a Cleveland Browns game broadcast by WLFM-LP that he tweeted about how "fantastic" it was.[7]

- WRME-LP, Chicago, Illinois broadcasts MeTV FM, an innovative format for the Baby Boomer generation.

    - Since its launch in February 2015, MeTV FM has experienced exponential growth, rating among the top radio stations in the Chicago area with almost 700,000 unique listeners each week.[8]

    - The Illinois Broadcasters Association has honored MeTV FM with numerous awards for community service, feature programming, public service announcements, and commercials.

    - In November 2019, MeTV FM and WBBM TV announced a partnership for the CBS owned and operated station to provide news and weather updates during the morning and afternoon drive.[9]

- WVOA-LP, Westvale, New York (Syracuse, NY) broadcasts Spanish, Italian, Polish and Bosnian foreign language programming as well as English-language programming specifically directed to African-Americans of Caribbean descent in addition to other programming directed to specialized listener interests.

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[7] https://twitter.com/AjitPaiFCC/status/1062189964195233794 (last visited Jan. 9, 2020).

[8] *See,* Exhibit A to Letter from Ari Meltzer to Marlene H. Dortch, Secretary, MB 03-185, GN 12-268, ET 14-175 at 10-11, 19-27 (June 10, 2019); Robert Channick, *MeTV FM Goes From Low-Power TV Station to Top-10 Chicago Radio Station*, Chicago Tribune (May 3, 2018), *available at* https://www.chicagotribune.com/business/ct-biz-me-tv-fm-chicago-radio-20180427-story.html; *WRME-LP (MeTV FM 87.7)/Chicago Adds News, Weather Updates From WBBM-TV (CBS 2)*, AllAccess.com (Nov. 12, 2019), https://www.allaccess.com/net-news/archive/story/191348/wrme-lp-metv-fm-87-7-chicago-adds-news-weather-upd (last visited Jan. 9, 2020).

[9] Robert Feder, *MeTV FM Partners With CBS 2 On News Updates*, RobertFeder.com (Nov. 12, 2019), https://www.robertfeder.com/2019/11/12/metv-fm-partners-cbs-2-news-updates/ (last visited Jan. 9, 2020).

As the Media Bureau recognized in the *87.7 Public Notice*, "[w]hen these LPTV stations convert to digital . . . they will be unable to continue providing such radio service because the digital audio portion of their signal can no longer be received by standard FM receivers."[10] Accordingly, in October 2014, the FCC asked in its *LPTV Third NPRM* "whether to allow LPTV stations on digital television channel 6 (82- 88 MHz) to operate analog FM radio-type services on an ancillary or supplementary basis pursuant to section 73.624(c) of the rules."[11] The Commission asked a number of legal and technical questions about this proposal, including whether a digital LPTV station can provide an analog FM radio-type service as an ancillary or supplemental service under the Communications Act and the FCC's rules, the likelihood that an FM radio-type service would interfere with or disrupt the LPTV station's digital TV service, and the potential for interference to other primary licensees.[12]

The record developed in response to the *LPTV Third NPRM* overwhelmingly favors allowing LPTV stations operating on channel 6 to continue to provide analog FM radio services after they have converted to digital. Supporters of the FCC's proposal to allow dual digital TV/analog FM operations on channel 6 explained how permitting continued analog audio operations on channel 6 would promote diversity and service to underserved ethnic communities.[13] At least two separate submissions also demonstrated that ATSC receivers can

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[10] *87.7 Public Notice* ¶ 2.

[11] *Amendment of Parts 73 and 74 of the Commission's Rules to Establish Rules for Digital Low Power Television and Television Translator Stations; Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions; Amendment of Part 15 of the Commission's Rules to Eliminate the Analog Tuner Requirement*, Third Notice of Proposed Rulemaking, 29 FCC Rcd. 12536 ¶ 47 (2014) ("*LPTV Third FNPRM*").

[12] *See generally id.* ¶¶ 47-53.

[13] *See, e.g.*, Comments of Educational Media Foundation, MB 03-185, GN 12-268, ET 14-175 at 2 (Jan. 12, 2015) (recognizing that "FM stations have been operating on channel 6 television

continue to receive digital television signals with the addition of an analog audio carrier.[14] Meanwhile, only two commenters opposed permitting dual digital TV/analog FM operations on channel 6 – raising concerns that are either moot, easily dismissed, or that can be addressed through rules and conditions.[15]

Nevertheless, when the Commission released its *Third Report and Order and Fourth Notice of Proposed Rulemaking* in the digital LPTV proceeding in December 2015, although it addressed many of the other issues raised in the *LPTV Third NPRM*, it declared in a footnote: "We intend to issue a decision on whether to permit digital LPTV stations to operate analog FM radio type services on an ancillary or supplementary basis at a later date."[16] With the LPTV digital transition deadline fast approaching, the time has come for the FCC to act.

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stations for years to provide diverse, niche radio programming to underserved audiences throughout the country"); Comments of One Ministries, Inc., MB 03-185 (Jan. 12, 2015); Comments of Venture Technologies Group, LLC, MB 03-185, GN 12-268, ET 14-175 at 4 (Jan. 11, 2015) ("VTG Comments"); Comments of Murray Hill Broadcasting, LLC and WLFM, LLC, MB 03-185, GN 12-268, ET 14-175 at 2 (Jan. 9, 2015); Comments of Signal Above, LLC, MB 03-185, GN 12-268, ET 14-175 at 4-6 (Sept. 12, 2015).

[14] *See* Comments of Linley Gumm and Charles Rhodes, MB 03-185, GN 12-268, ET 14-175 (Nov. 12, 2014) ("Gumm/Rhodes Comments"); Joint Comments of Island Broadcasting LLC and Richard D. Bogner, MB 03-185, GN 12-268, ET 14-175 (Jan. 9, 2015) ("Island Broadcasting/Bogner Comments"); *see also* VTG Comments at 2-3.

[15] *See generally* Comments of National Public Radio, Inc., MB 03-185, GN 12-268, ET 14-175 at 3-13 (Jan. 12, 2015); Reply Comments of National Public Radio, Inc., MB 03-185, GN 12-268, ET 14-175 (Feb. 2, 2015); *see also* Reply Comments of Cohen Dippell and Everist, P.C., MB 03-185, GN 12-268, ET 14-175 at 2 (Feb. 2, 2015) (claiming, without explanation, that providing channel 6 aural services "skirts the current FCC rules"). A third commenter raised concerns about the FCC's proposal, but did not oppose it outright. *See* Reply Comments of REC Networks, MB 03-185, GN 12-268, ET 14-175 at 3-13 (Feb. 2, 2015).

[16] *Amendment of Parts 73 and 74 of the Commission's Rules to Establish Rules for Digital Low Power Television and Television Translator Stations; Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions; Amendment of Part 15 of the Commission's Rules to Eliminate the Analog Tuner Requirement*, Third Report and Order and Fourth Notice of Proposed Rulemaking, 30 FCC Rcd. 14927 ¶ 4 n. 12 (2015).

III. THE COMMISSION SHOULD MODIFY ITS RULES TO EXTEND THE AVAILABILITY OF ANALOG AUDIO PROGRAMMING ON 87.7 FM FOLLOWING THE JULY 2021 LPTV DIGITAL TRANSITION

The members of the PCPC are excited about the opportunity to offer innovative new video services when they transition to digital on or before July 13, 2021. Since the full power digital transition in 2009, viewers increasingly have embraced digital television services, and analog video viewership has rapidly declined. But at the same time viewers were abandoning analog video, radio listeners were embracing the innovative audio program services that LPTV licensees, including PCPC members, began to offer on 87.7 FM. Not only do 87.7 FM audio services have millions of listeners nationwide, but they serve underserved audiences with niche program formats not available elsewhere on the radio dial.

While, as a general matter, it would not serve the public interest for the FCC to reduce any free, over-the-air broadcast services, this notion is particularly strong with regard to the diverse program formats offered on 87.7 FM. Accordingly, the Commission should ensure that currently operating analog channel 6 LPTV stations can continue to offer analog audio services on 87.7 FM following the digital transition. As explained in greater detail below, the FCC can adopt service rules for 87.7 FM services that comply with the Communications Act, prevent any theoretical RF interference, and allow digital video services on LPTV channel 6 to thrive. The Commission should adopt such rules forthwith to ensure that the remaining analog stations can complete their transition to digital on time and without harm to the millions of listeners that have come to depend on their analog audio service on 87.7 FM.

A. The Commission Should Permit Currently Operating Analog Channel 6 Stations to Continue Transmitting an Analog Audio Carrier Following the LPTV Digital Transition.

The central question in the *87.7 Public Notice* is whether to allow analog channel 6 LPTV stations that currently operate an analog audio service to continue providing this service after they transition their primary television signal to digital.[17] Given the strong public interest benefits associated with preserving aural programming on 87.7 FM, the Commission should ensure that listeners do not lose access to 87.7 FM audio services following the mandatory digital transition for LPTV stations. The Commission has repeatedly recognized the importance of minimizing disruption to consumers as part of FCC-mandated technical changes.[18] Indeed, the Commission has already expressed a goal of "minimizing disruption of existing service to consumers served by analog LPTV, TV translator and Class A stations" in the course of the digital transition.[19] This is consistent with the FCC's policy of preserving in the digital transition "the public good of free television that is widely available today."[20]

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[17] *87.7 Public Notice* ¶ 5.

[18] *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, 29 FCC Rcd. 6567 ¶ 559 (2014) ("*Incentive Auction R&O*") ("The record in this proceeding shows the need for a post-incentive auction transition timetable that is flexible for broadcasters and that minimizes disruption to viewers"); *In re Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Eighteenth Report, 32 FCC Rcd. 568, 606, ¶ 95 (2017) (recognizing the Media Bureau's goal of "limit[ing] the impact of the transition on consumers"); *In re Authorizing Permissive Use of the Next Generation Broadcast Television Standard*, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd. 9930, 9949, ¶ 36 (2017) (explaining that 5% population loss standard for ATSC 3.0 stations will "protect[] viewers from undue service disruption").

[19] *Amendment of Parts 73 and 74 of the Commission's Rules to Establish Rules for Digital Low Power Television, Television Translator, and Television Booster Stations and to Amend Rules for Digital Class A Television Stations*, Report and Order, 19 FCC Rcd. 19331 ¶ 1 (2004).

[20] *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, Fifth Report and Order, 12 FCC Rcd. 12809 ¶ 29 (1997).

The record is replete with examples of the innovative audio services that currently operating analog channel 6 LPTV stations offer to millions of listeners who tune their radios to 87.7 FM. These services, which frequently target underserved communities, are typically not available on any other station in the market and would not be available but for the provision of an analog audio service on these channel 6 stations. As the Commission has recognized, offering additional services on an existing television channel "contributes to efficient spectrum use and can expand and enhance use of existing spectrum."[21]

Notably, channel 6 stations, including those owned and operated by PCPC members, continue to offer a free, over-the-air video service that can provide valuable information to viewers who still watch analog television, including live traffic and weather radar, information about events in the home country of large ethnic communities, and information about community events near the station. As these stations prepare to transition to a digital television service, many are investing in new capabilities that will allow them to provide locally-produced television content and multiple streams of video programming in addition to their coveted analog audio programming. Allowing these stations to continue offering an audio service available to listeners on 87.7 FM will serve the public interest by ensuring the ongoing availability of important and diverse programming without interruption and with no deleterious effect on digital LPTV television service.

The Commission can reasonably restrict eligibility to broadcast an analog audio carrier on 87.7 FM to LPTV stations currently operating pursuant to a valid analog channel 6 license.[22]

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[21] *Advanced Television Sys. & Their Impact Upon the Existing Television Broad. Serv.*, Report and Order, 12 FCC Rcd. 12809 ¶ 32 (1997).

[22] *87.7 Public Notice* ¶ 5.

The FCC routinely tailors its rules narrowly to balance the public interest benefits of particular uses of licensed spectrum against scarcity concerns.[23] Courts, meanwhile, provide the Commission with substantial deference to engage in reasoned line drawing.[24] By limiting eligibility to conduct dual digital TV/analog audio operations to currently operating analog channel 6 stations, the FCC can preserve the public interest benefits of extending a service that listeners have come to depend upon without creating a rush of stations looking to move to channel 6.

It is axiomatic that the Commission may apply different regulations to regulated parties as long as it can point to factual differences that justify the differential treatment.[25] Following this rule, the Commission regularly limits the application of certain rules on a prospective basis and excludes parties for which application of the new rules would prohibit or materially alter existing operations.[26] With regard to analog audio services on 87.7 FM, factual differences

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[23] *See, e.g.*, *Revitalization of the AM Radio Service*, First Report and Order, Further Notice of Proposed Rulemaking, and Notice of Inquiry, 30 FCC Rcd. 12145 ¶ 12 (2015) (providing AM stations with a waiver to relocate FM translator stations up to 250 miles through a minor modification); *In re Establishment of a Class A Television Service*, Report and Order, 15 FCC Rcd. 6355 (2000) (establishing eligibility criteria designed "to establish the rights of a very specific, already existing group").

[24] *See, e.g.*, *WorldCom, Inc. v. FCC*, 238 F.3d 449, 461-62 (D.C. Cir. 2001) (holding that the Commission, when engaging in line drawing, "is only required to identify the standard and explain its relationship to the underlying regulatory concerns"); *AT&T Corp. v. FCC*, 220 F.3d 607, 627 (D.C. Cir. 2000) (finding that "the Commission has wide discretion to determine where to draw administrative lines, and appellants point to nothing suggesting that the agency abused its discretion in drawing the line[s]' where it did"); *Home Box Office, Inc. v. FCC*, 567 F.2d 9, 60 (D.C. Cir 1977) ("[W]e are unwilling to review line-drawing performed by the Commission unless a petitioner can demonstrate that lines drawn . . . are patently unreasonable, having no relationship to the underlying regulatory problem.").

[25] *See, e.g.*, *Melody Music, Inc. v. F.C.C.*, 345 F.2d 730, 732 (D.C. Cir. 1965).

[26] *See In the Matter of Cable Television Syndicated Program Exclusivity Rules in the Matter of Inquiry into the Econ. Relationship Between Television Broad. & Cable Television*, Report and Order, 79 F.C.C.2d 663 ¶ (1980) (recognizing that distant signal rules did not apply to cable

justify limiting the authority to offer such services to "currently operating" stations. In particular, the public interest that justifies allowing this service is based on the investment by existing licensees to develop an audio service upon which listeners have come to rely. Because only currently operating stations would need to discontinue an existing program service after the digital transition, extending newly adopted rules only to those stations would be justified.

Should the Commission elect to impose such a limit on eligibility, however, the PCPC believes that efficiency considerations justify defining "currently operating" based on the station's licensing status rather than the program service that it is offering. Specifically, the FCC should extend eligibility to transmit a dual digital TV/analog audio signal to any station that possesses a valid analog channel 6 license as of the date of the Commission's order. While the Commission's proposal to limit eligibility to stations "currently operating an analog FM radio-type service" is reasonable, it may prove difficult to administer, as the FCC does not currently track or have any way of verifying what stations offer such a service. Furthermore, extending eligibility based on the content that stations transmit rather than their operating status could constitute the type of content-based regulation that the Commission typically seeks to avoid.[27]

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systems carrying distant signals prior to 1972); *In the Matter of Policies to Promote Rural Radio Serv. & to Streamline Allotment & Assignment Procedures*, Second Report and Order, First Order on Reconsideration, and Second Further Notice of Proposed Rule Making, 26 FCC Rcd. 2556 ¶¶ 33, 35 (2011) (declining to extend new rules to pending applications based on equitable considerations); *In the Matter of Expanding the Econ. & Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, 29 FCC Rcd. 6567 ¶ 691 (2014) (grandfathering broadcast station combinations that became noncompliant due to incentive auction).

[27] *See, e.g.*, *Leflore Broad. Co. v. FCC*, 636 F.2d 454, 460 (D.C. Cir. 1980) (recognizing that First Amendment requires that "[l]icensees must be permitted to exercise discretion in programming"); *License Renewal Applications of Certain Commercial Radio Stations Serving Philadelphia, Pennsylvania*, Memorandum Opinion and Order, 8 FCC Rcd. 6400, 6401 (1993) (citing *Time-Life Broadcast, Inc.*, Memorandum Opinion and Order, 33 FCC 2d 1081, 1082

By instead focusing on a station's operating status, the FCC could achieve the goal of preserving diverse programming for existing listeners without creating an entirely new audio service. Only analog channel 6 LPTV stations can offer "an analog FM radio-type service," and according to the FCC's LMS system, there are only 51 licensed and operating analog channel 6 LPTV and TV translator stations. Because the majority of these 51 stations currently offer programing intended for analog radio reception, restricting eligibility to these stations would advance the Commission's interest in preventing listener disruption without creating a rapid expansion of new audio services.

B. The Commission Can Facilitate the Continuation of Analog Audio Services on 87.7 FM After the Digital Transition Through Minor Changes to the FCC's Existing Rules.

The FCC's rules currently permit an analog LPTV station to use its licensed spectrum to broadcast a separate audio service that can be received on 87.7 FM.[28] For digital LPTV stations, however, the rules include two potential barriers to a dual digital TV/analog audio transmission. By adopting relatively minor changes to its rules, the Commission can authorize currently operating analog channel 6 LPTV stations to continue providing the valuable 87.7 FM audio services upon which listeners have come to rely.

1. Existing Aural Services on Analog LPTV Channel 6 Stations Fully Comply With the Commission's Rules.

There can be no doubt that the FCC's rules governing analog LPTV stations permit (if not contemplate) the use of the associated spectrum to provide dedicated aural services. Section

(1972); *Office of Communications of United Church of Christ v. FCC*, 707 F.2d 1413 (D.C. Cir. 1983)).

[28] *87.7 Public Notice* ¶ 4.

73.653, which the FCC adopted almost four decades ago (and which, for LPTV stations, is incorporated by reference in 47 C.F.R. § 74.780), provides that: "The aural and visual transmitters [of a television station] may be operated independently of each other or, if operated simultaneously, may be used with different and unrelated program material."[29] The very purpose of this rule was to allow broadcasters to display non-integrated programming, such as news, weather forecasts, or silent films, with background music or other unrelated audio.[30] Therefore, analog channel 6 LPTV stations that use a portion of their spectrum for an audio service that can be received on 87.7 FM fully comply with the Commission's existing rules.

2. The Commission Must Adopt Minor Amendments to Its Digital Rules to Preserve Existing Services on 87.7 FM.

There are two substantive differences between the rules governing analog and digital LPTV stations that, if not addressed, would prevent digital LPTV stations from continuing to offer the analog audio services that listeners have come to expect on 87.7 FM. First, Section 74.731(m) prohibits LPTV stations from operating "***any facility*** in analog (NTSC) mode" after July 13, 2021.[31] Second, Section 74.789 excludes from the rules applicable to digital LPTV stations the authority to operate separate aural and visual transmitters.[32] A review of the history of these rules confirms that they were not adopted to preclude the type of dual digital TV/analog audio transmissions contemplated in this proceeding. Rather, the Commission simply did not contemplate the possibility of or need for such a service at the time. Accordingly, the FCC can

[29] 47 C.F.R. § 73.653. . *See id.* § 74.780.

[30] *See Operation of Video and Aural Transmitters of TV Stations*, Report and Order, 82 FCC 2d 193 ¶¶ 3, 6-8 (1980).

[31] 47 C.F.R. § 74.731(m) (emphasis added).

[32] 47 C.F.R. § 74.789.

easily modify these rules to allow currently operating analog channel 6 LPTV stations to continue offering important analog audio program services following the digital transition.

First, the Commission can include an exception to Section 74.731(m) to allow currently operating analog channel 6 LPTV stations to continue using a portion of their spectrum to provide an analog aural service on 87.7 FM following the digital transition. In adopting Section 74.731(m), the Commission explained that it was seeking to "hasten the low power television conversion to digital, so that more of the public will be able to enjoy the benefits of digital broadcast television technology."[33] But while the Commission determined that allowing stations to continue operating ***exclusively*** in analog mode "would prevent consumers from enjoying the benefits of digital broadcast technology,"[34] it did not contemplate the type of dual digital TV/analog audio service under consideration in this proceeding.

The Commission can amend Section 74.731(m) to preserve its original intent of hastening the benefits of the digital transition while avoiding the unintended loss of established and valued audio services on 87.7 FM. Specifically, the Commission can include a carve out to the absolute prohibition against operating "***any facility*** in analog . . . mode" to permit currently operating analog channel 6 LPTV stations to use their spectrum to simultaneously transmit a digital LPTV signal and an analog audio carrier. The only effect of this change would be to allow currently operating analog channel 6 LPTV stations to supplement their digital LPTV signal with an analog audio carrier. All LPTV stations, including those transmitting an analog

[33] *Amendment of Parts 73 and 74 of the Commission's Rules to Establish Rules for Digital Low Power Television, Television Translator, and Television Booster Stations and to Amend Rules for Digital Class A Television Stations*, Second Report and Order, 26 FCC Rcd. 10732, ¶ 6 (2011).

[34] *Id.* ¶ 12.

audio carrier, would remain subject Section 74.795(b), which requires LPTV stations to utilize transmitters "designed to produce digital television signals that can be ***satisfactorily viewed*** on consumer receiving equipment ***based on*** the digital broadcast television transmission standard in § 73.682(d) of this chapter."[35] As such, the transmission of an analog audio carrier could not, by rule, interfere with an LPTV station's digital video service. Accordingly, this proposed amendment would still promote the benefits of digital television—just without impairing corresponding analog audio services.

Second, the Commission can revise Section 74.789 to extend the authority to operate separate aural and visual transmitters to the limited number of currently operating analog channel 6 LPTV stations that would be authorized to broadcast an analog audio signal after the digital transition. As explained above, Sections 73.653 and 74.780 of the FCC's rules unambiguously permit analog LPTV stations to broadcast independent audio and visual carriers.[36] However, in adopting the list of rules applicable to digital LPTV stations, the Commission excluded Section 73.653 from the rules it incorporated by reference.[37] In so doing, however, the Commission merely sought to eliminate a rule that it believed to be unnecessary because "DTV signals do not have visual and aural carriers."[38] There is no reason to believe that the agency even considered the possibility that authorizing separate aural and visual transmitters could be necessary. Now

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[35] 47 C.F.R. § 74.795(b) (emphasis added).

[36] *See* 47 C.F.R. §§ 73.653 ("The aural and visual transmitters [of a television station] may be operated independently of each other or, if operated simultaneously, may be used with different and unrelated program material.") & 74.780 (incorporating Section 73.653 into the LPTV rules).

[37] *See* 47 C.F.R. § 74.789.

[38] *See Amendment of Parts 73 and 74 of the Commission's Rules Concerning Rules to Establish Rules for Digital Low Power Television, Television Translator, and Television Booster Stations and to Amend Rules for Digital Class A Television Stations*, 18 FCC Rcd. 18365 ¶ 89 (2003).

that the Commission has a fully developed record establishing why it is in the public interest to authorize independent aural transmissions on a limited basis, it should either amend Section 74.780 or otherwise alter its rules to ensure that listeners do not lose this important program service.

3. The Commission Can Authorize the Use of An Analog Audio Carrier at 87.7 FM Without Relying on Its Rules for Ancillary or Supplementary Services.

Although the *87.7 Public Notice* asks whether the Commission should authorize the use of a supplementary audio carrier "pursuant to the existing ancillary or supplementary services rules,"[39] the FCC can authorize the transmission of a free, over-the-air analog audio carrier on 87.7 FM without deeming this service ancillary or supplementary. Under the existing rules, the transmission of an analog audio carrier for reception on 87.7 FM is *not* an ancillary or supplementary service. In the *Fifth Report and Order on Advanced Television Services*, the Commission defined an ancillary or supplementary service as "any service provided on the digital channel ***other than free, over the air services***."[40] This is a logical distinction given the inclusion of other free, over-the-air services, such as multicast streams and digital audio services, as core broadcast services and not ancillary or supplementary services. Although the 1996 Act and the FCC's subsequent rulemaking clarified ***which*** ancillary or supplementary services should be subject to a fee, they did not purport to alter the Commission's definition of ancillary or supplementary services.[41] Thus, the FCC would need to modify its definition of ancillary or

[39] *87.7 Public Notice* ¶ 5.

[40] *In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, Fifth Report & Order, 12 FCC Rec. 12809 ¶ 30 (1997) (emphasis added).

[41] *See Fees for Ancillary of Supplementary Use of Digital Television Spectrum Pursuant to Section 336(e)(1) of the Telecommunications Act of 1996,* Report and Order, 14 FCC Rcd. 3259

supplementary services to include a free, over-the-air analog audio service transmitted in conjunction with a digital LPTV license.

But while the Commission ***can*** modify its definition of ancillary or supplementary services, there is no reason for it to do so. LPTV stations licensed to operate on analog channel 6 currently provide audio programming for reception on 87.7 FM pursuant to the licensing rules for analog LPTV stations and not as an ancillary or supplementary service. The Commission can simply extend such rules to currently operating analog channel 6 LPTV stations following the LPTV digital transition, as described more fully in Section III.B, *infra*, without having to resort to the Commission's rules regarding ancillary or supplementary services.

To the extent the Commission nevertheless believes it must classify an 87.7 FM audio carrier as an ancillary or supplementary service, it has authority to do so. As with full power stations, LPTV stations are authorized to offer ancillary or supplementary services.[42] The Commission has already explained, by way of illustration, that ancillary and supplementary services can include "aural messages . . . audio signals . . . and other services that do not derogate DTV broadcast stations' obligations."[43] Currently, however, such signals are not ancillary or supplementary if they are provided for reception on a free, over-the-air basis. The FCC can alter its definition of an ancillary and supplementary service to include a free broadcast service that

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¶ 31 n. 54 (1998) (limiting the proceeding to "the 'feeable' services subcategory" and expressly declining to define what is an ancillary or supplementary service).

[42] *See* 47 C.F.R. § 74.701(k) (defining a digital low power station to include, *inter alia*, services of an ancillary or supplementary nature, including subscription based services); 74.790(h) (stating that upon transmitting a free, over the air video signal, an LPTV station "may offer services of any nature, consistent with the public interest, convenience, and necessity, on an ancillary or supplementary basis").

[43] *Id.* § 73.624(c).

uses a technology other than the primary technology for that allotment, and the transmission of an analog audio carrier by a digital LPTV station would fit squarely within this definition. Thus, should the Commission determine that it could only authorize transmission of an analog audio carrier by a digital LPTV licensee as an ancillary or supplementary service, it can and should amend its definition of an ancillary or supplementary service accordingly.

C. The Commission Should Adopt Flexible Service and Interference Rules for Dual Digital TV/Analog Audio Operations

In adopting its service and interference rules for stations authorized to transmit a dual digital TV/analog audio signal, the Commission must balance the need to prevent unwanted interference against the effect unwarranted and overly burdensome rules can have on the ability of broadcasters to make the best use of evolving technologies. The record in this proceeding clearly establishes that an analog radio signal can co-exist on the same 6 MHz channel as a digital channel 6 LPTV station without harming TV or FM reception.[44] Indeed, LPTV stations have been transmitting independent audio streams on 87.7 FM for more than 15 years without any documented cases of actual interference between these aural transmissions and adjacent FM stations. Nevertheless, PCPC members support the adoption of flexible service and interference rules to prevent actual interference while providing licensees with the flexibility they need to maximize the use of their spectrum and deliver valuable audio and video programming.

1. The Commission Can Adopt Service Rules to Prevent Against Self-Interference.

[44] *87.7 Public Notice* ¶ 6 (quoting Venture Technologies Group, Inc., et al. (Channel 6 Commenters), *Notice of Communications*, MB Docket No. 03-185, at 315 (filed June 10, 2019)); Preserve Community Programming Coalition, *Informal Comments*, MB Docket No. 03-185, at 8-9 (filed July 3, 2019)).

The record already established in this proceeding demonstrates that a digital LPTV transmission and an analog audio carrier can co-exist on the same channel without affecting the ability of viewers to receive either the digital video signal or the analog audio signal. Nevertheless, any theoretical risk that may exist can be addressed through service rules that prioritize the digital LPTV transmission.

In response to the *LPTV Third FNPRM*, commenters submitted two studies demonstrating the feasibility of transmitting a digital LPTV signal and an analog audio carrier on the same 6 MHz channel. In the first study, engineers Linley Gumm and Charles Rhodes conducted a series of tests to determine how 18 DTV receivers tolerated the presence of an FM modulated carrier at the upper edge of channel 6.[45] Gumm and Rhodes found that 75% of the DTV receivers did not experience any harmful interference from 87.7 FM carriers.[46] Moreover, they determined that any interference experienced by the remaining receivers could be addressed by limiting the amplitude of the FM carrier.[47] Richard Bogner and Island Broadcasting Co. conducted similar tests using 27 different receivers.[48] Like Gumm and Rhodes, Bogner and Island determined that the DTV signal could be received by all receivers as long as the ERP of the FM carrier was sufficiently below that of the DTV transmitter.[49]

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[45] *See* Gumm/Rhodes Comments at 2.

[46] *See id.* at 13.

[47] *See id.*

[48] *See* Island Broadcasting/Bogner Comments at 2.

[49] *See id.* at 2-4. Attached hereto as Exhibit B is a statement by Clarence M. Beverage of Communications Technologies, Inc. (the "Beverage Statement") that demonstrates several feasible technical configurations for an analog audio carrier to share a 6 MHz channel with a digital LPTV signal.

While the aforementioned testing demonstrates the feasibility of combining an ATSC 1.0 signal with an analog audio carrier, DTV reception is likely to be even stronger under the next generation transmission standard, ATSC 3.0. One of the key attributes of ATSC 3.0 is its robustness, which the Commission has recognized "allow[s] broadcasters to customize the payload, interference susceptibility, and mobile performance of their primary video signal."[50] Testing is currently underway regarding the compatibility between ATSC 3.0 signals and an analog FM carrier, and the PCPC expects that those results will be submitted to the Commission when they are available.

Nevertheless, the Commission need not wait until it has absolute certainty regarding the technical configuration of a dual digital TV/analog FM transmission. The FCC's existing rules include a framework for the Commission to provide broadcasters with flexibility to determine the optimal technical configuration for their digital LPTV and analog audio carriers while meeting minimum service standards. Specifically, under the Commission's existing rules, LPTV stations are not required to adhere strictly to the digital TV standard like full power stations. Rather, LPTV stations must use transmitters "designed to produce digital television signals that can be satisfactorily viewed on consumer receiving equipment based on the digital broadcast television transmission standard in § 73.682(d) of this chapter . . . ."[51] Consistent with this approach, the Commission should require that stations authorized to transmit a dual digital TV/analog audio signal provide a free, over-the-air video signal at all times that can be

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[50] *See Authorizing Permissive Use of the "Next Generation" Broadcast Television Standard*, Report an Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd. 9930 ¶ 102 (2017). The Commission has authorized LPTV and TV translator stations to transition directly to ATSC 3.0 without simulcasting. *See* 47 C.F.R. § 74.782(c).

[51] 47 C.F.R. § 74.795(b).

satisfactorily viewed on consumer receiving equipment for ATSC 1.0 or ATSC 3.0. This approach will allow broadcasters to continue to innovate to provide the most efficient use of their 6 MHz spectrum while ensuring that both: (1) viewers can experience the benefits of digital television service; and (2) listeners will continue to receive the existing 87.7 FM audio services upon which they have come to depend.

2. The Commission Should Adopt Cross-Service Contour Overlap Protections for LPTV Channel 6 Stations.

Although members of the PCPC are not aware of a single instance of actual interference between an LPTV station's analog audio carrier and a station in the FM band, the Commission can address any theoretical "potential for interference"[52] by adopting reasonable contour overlap protections between LPTV stations transmitting an analog audio carrier on 87.7 FM and FM station operating on channels 201 and 202. Currently, aside from the overly broad distance separation requirements, the FCC does not have any rules addressing cross-service interference between LPTV stations on channel 6 and FM stations operating on adjacent channels. As the PCPC explained in the Commission's proceeding regarding LPFM technical standards, the FCC could extend the contour overlap protections in Section 73.509(a) to potential overlap between the contours of LPTV stations transmitting an 87.7 FM analog audio carrier and LPFM or NCE FM stations on channels 201 and 202.[53] Under this standard, any overlap between the 60 dBu contour of an 87.7 FM audio carrier and the 100 dBu contour of an LPFM or NCE FM station on channel 201 or 202 or vice-versa would be prohibited. While this approach is likely over-

[52] *87.7 Public Notice* ¶ 6 (quoting California State University Long Beach Research Foundation, *Ex Parte Communication*, MB Docket No. 03-185 (filed July 30, 2019)).

[53] *See* Preserve Community Programming Coalition, *Reply Comments*, MB Docket Nos. 19-193 and 17-105 (filed Nov. 4, 2019).

protective based on the real world experience of existing LPTV channel 6 licensees, it should provide the certainty necessary for stations operating in both services. As a further backstop against unintended interference, the Commission can apply a strict actual interference requirement based on rules similar to those that it recently adopted to govern interference from FM translators to full power FM stations.[54]

Broadcasters should have no difficulty configuring their dual digital TV/analog audio transmissions in a manner that protects nearby FM stations. Mr. Beverage, who works with both LPTV stations and NCE FM stations, found that the use of a narrow analog FM mask filter would serve the dual purpose of limiting the amount of the digital video signal entering the FM transmitter and limit the radiation from the FM signal into adjacent NCE spectrum.[55] Accordingly, the overlap protections proposed herein should be more than adequate to prevent any hypothetical interference between an analog audio carrier on 87.7 FM and adjacent channel NCE FM operations.

D. None of the Other Issues Raised in the NPRM Should Serve As a Barrier to Extending the Public Interest Benefits of Existing Audio Services on 87.7 FM.

In the *87.7 Public Notice*, the Commission, citing the passage of time, seeks comment "on the remaining issues raised in the NPRM."[56] Specifically, the Commission asks: (1) whether authorizing the use of an analog audio carrier is consistent with Section 336(b)(1) of the Communications Act; (2) whether analog audio services provided by channel 6 LPTV licensees should be subject to the Part 73 rules applicable to FM radio stations; and (3) whether currently

[54] *See* Channel 6 Commenters at App'x A.

[55] *Beverage Statement* at 2.

[56] *87.7 Public Notice* ¶ 8.

operating analog channel 6 LPTV licensees should be able to transfer their right to continue analog operations. The PCPC addresses each of these issues below.

1. Permitting Existing Analog Channel 6 Licensees to Provide an Analog Audio Signal After the Digital Transition is Consistent With the Communications Act and Digital Technology

Nothing in Section 336(b)(1) or any other section of the Communications Act should prevent the FCC from allowing currently operating analog channel 6 LPTV stations to continue providing audio services on 87.7 FM following the digital transition. Section 336 governs the licensing of digital television services, and subsection (b)(1) provides that the FCC should only permit a licensee or permittee "to offer ancillary or supplementary services if the use of a designated frequency for such services is consistent with the technology or method designated by the Commission for the provision of advanced television services."[57]

As an initial matter, for the reasons discussed in Section III.B.3, *supra*, the provision of free audio programming over-the-air using an analog audio carrier is not an ancillary or supplementary service and, therefore is not subject to Section 336(b)(1).

Even if the Commission determines that the provision of free audio programming over-the-air using an analog audio carrier is an ancillary or supplementary service, the proposed service "is consistent with the technology or method designated by the Commission for the provision of advanced television systems." When Congress adopted Section 336(b)(1), it did so with the understanding that the digital services offered within each 6 megahertz assignment "cannot be separated or segmented."[58] At the same time, Congress indicated that it did not

[57] 47 U.S.C. § 336(b)(1).

[58] H.R. 104-204 at 116.

intend for Section 336(b)(1) to "prevent licensees from providing such other services as the Commission may permit," including services across the entire 6 MHz, as long as they were consistent with the Commission's digital television requirements.[59] Accordingly, an ancillary or supplementary service is "consistent with" advanced television services under Section 336(b)(1) as long as it does not interfere with the licensee's ability to offer a primary digital television signal as authorized by the Commission.

Here, the proposed use of an analog audio carrier would supplement, and not interfere with, an LPTV licensee's primary digital television signal. This requirement is already encompassed in Section 74.795(b) of the Commission's rules, which requires that each digital LPTV station operate with a transmitter "designed to produce digital television signals that can be satisfactorily viewed on consumer receiving equipment based on the digital broadcast television transmission standard."[60] Put another way, any transmission by a digital LPTV licensee that complies with Section 74.795(b) of the FCC's Rules "is consistent with the technology or method designated by the Commission for the provision of advanced television systems" and, therefore, also complies with Section 336(b)(1) of the Act. Thus, Section 336(b)(1) should not preclude the use of an analog audio carrier to preserve existing 87.7 audio services.

2. The Analog Audio Carrier Transmitted By a Digital LPTV Licensee Should Be Subject to Regulations Consistent With Its Status As Both a Secondary Service and a Multicast Service.

[59] *Id.*

[60] 47 C.F.R. § 74.795(b).

Although the PCPC and its members agree that certain of the Commission's Part 73 rules should apply to the analog audio service provided on 87.7 FM by the licensee of a digital channel 6 LPTV station, such regulations should be commensurate with the type of service provided: namely, a secondary broadcast service and a multicast service. Because the license issued to a digital LPTV licensee would not confer primary status for either the video or audio transmission, the licensee should not be subject to any regulations that are unique to primary licensees, such as maintenance of an online public file. The Commission has already determined that certain rules should only apply to primary stations, and nothing about the proposed dual digital TV/analog audio transmission would justify applying rules designed for primary stations to a different form of a secondary service. Furthermore, because each of the stations at issue in this proceeding is currently licensed as an LPTV station and would continue to be licensed, foremost, as an LPTV station, it does not make sense to subject these stations to the Part 73 technical rules for FM stations. Rather, these stations should be subject to the Part 74 technical rules applicable to LPTV stations, with the exception of the specific modifications discussed in Part C.2, *supra*, to protect both the digital video signal provided on the same LPTV channel and LPFM and NCE FM stations operating on channels 201 and 202.

Because the proposed FM audio carrier would be the functional equivalent of an FM multicast stream in that it is an additional free program service offered as a supplement to the primary program stream, the Commission should reasonably apply many of the rules applicable to an FM multicast stream to 87.7 FM audio transmissions (provided that this would not impose any responsibilities beyond those applied to other secondary stations). When considering the rules applicable to FM multicast streams and those applicable to other secondary services, the

following rules should reasonably apply to an FM audio carrier transmitted in connection with a digital channel 6 LPTV license:

- Section 73.1201 Station identification.
- Section 73.1206 Broadcast of telephone conversations.
- Section 73.1207 Rebroadcasts.
- Section 73.1208 Broadcast of taped, filmed, or recorded material.
- Section 73.1211 Broadcast of lottery information.
- Section 73.1212 Sponsorship identification; list retention; related requirements.
- Section 73.1216 Licensee-conducted contests.
- Section 73.1940 Legally qualified candidates for public office.
- Section 73.3999 Enforcement of 18 U.S.C. 1464—restrictions on the transmission of obscene and indecent material.

Although the transmission of a free, over-the-air audio service on 87.7 FM is not technically an ancillary or supplementary service, applying these rules would nevertheless satisfy the intent of Section 336(b)(3) of the Act to "apply . . . such of the Commission's regulations as are applicable to the offering of analogous services by any other person."[61]

3. Authorization to Transmit an Analog Audio Carrier Should Attach to the Station and Be Fully Transferable

Given the well-established public interest benefits of preserving existing 87.7 FM audio services, there is no basis for the Commission to impose restrictions on the ability to transfer the right to broadcast an analog audio carrier in connection with the license to which it attaches. The FCC typically only imposes restrictions on the transferability of a grandfathered authorization in the case of media ownership, where the purpose of grandfathering (providing continuity of ownership) would expire upon the transfer or assignment of the authorization. For example, when the Commission changed the contour used to determine compliance with the local television rule in 2016, it grandfathered existing combinations, finding that "disruption to the

[61] 47 U.S.C. § 336(b)(3).

marketplace and hardship for individual owners resulting from forced divestiture of stations would outweigh any benefits of forced divestiture to our policy goals, including promoting ownership diversity."[62] However, the Commission required that grandfathered combinations comply with the applicable standard at the time of a sale, explaining that because the purpose of grandfathering was to preserve the existing ownership structure, "the public interest would not be served by allowing grandfathered combinations to be freely transferable in perpetuity."[63]

Such is not the case here. Allowing currently operating analog channel 6 LPTV stations to transmit an analog audio carrier after the digital transition is not an act of grandfathering at all, but rather a proper exercise of the Commission's discretion to narrowly tailor its rules to a particular group of stations.[64] No matter how the FCC classifies its approach, however, the purpose of allowing currently operating analog channel 6 LPTV stations to utilize an aural carrier is to preserve an existing and much valued program service for listeners, not to preserve the benefits of ownership. Prohibiting the transfer of an authorization to broadcast an 87.7 FM aural service along with the license for that station would defeat the rationale for permitting this

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[62] *See 2014 Quadrennial Regulatory Review - Review of the Commission's Broadcast Ownership Rules And Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996*, Second Report and Order, 31 FCC Rcd. 9864 ¶ 34 (2016).

[63] *Id.* ¶ 35; *see also Incentive Auction R&O* ¶ 693 (requiring new owner to comply with media ownership rules in place at the time of a transaction or obtain a waiver).

[64] *See, e.g.*, *2002 Biennial Regulatory Review – Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996*, Report and Order and Notice of Proposed Rulemaking, 18 FCC Rcd. 13620, 13843, ¶ 580 (2003) (recognizing the Commission's "wide discretion when drawing administrative lines"); *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Order on Reconsideration, 31 FCC Rcd. 1367, 1377, n.65 (2016) ("Courts are 'generally unwilling to review line-drawing performed by the Commission unless a petitioner can demonstrate that lines drawn . . . are patently unreasonable, having no relationship to the underlying regulatory problem."' (quoting *Cassell v. FCC*, 154 F.3d 478, 485 (D.C. Cir. 1998));

service in the first place and eliminate a valuable program service for underserved populations. Accordingly, the public interest would not be served by placing restrictions on the transferability of the right to continue analog audio transmissions. Rather, the FCC should specify that the right to transmit an aural carrier attaches to the station, which will preserve the established benefits of existing 87.7 FM program services for years to come.

E. The FCC Must Modify Its Rules to Impose a Targeted Fee on Revenues Generated From an Analog Audio Service.

The final issue for the Commission to decide is whether and how to impose a fee on revenues generated from the use of an analog audio carrier to transmit a program stream on 87.7 FM.[65] The Commission's authority to impose service fees derives from Section 336(e) of the Communications Act, which permits the imposition of a fee for ancillary and supplementary services for which either: (1) the payment of a subscription fee is required or (2) the licensee directly or indirectly receives compensation from a third party.[66] Although members of the PCPC were previously under the impression that a supplementary 87.7 MHz audio signal qualifies as an ancillary service, upon further analysis, as explained in Section III.B.3, the provision of a free over-the-air broadcast service does not fall within the Commission's definition of an ancillary or supplementary service. Accordingly, there would be no basis for the FCC to impose a fee on this service.

The PCPC does not, however, oppose a properly applied ancillary services fee if the Commission were to reclassify this service as an ancillary or supplementary service. Specifically, under Section 336(e) of the Act, a properly applied fee would only apply to

[65] *87.7 Public Notice* ¶ 6.

[66] 47 U.S.C. § 336(e).

revenues from services: (1) that require the payment of a subscription fee; or (2) for which the licensee directly or indirectly receives compensation from a third party in return for transmitting material furnished by such third party (other than commercial advertisements used to support broadcasting for which a subscription fee is not required). Because the analog audio service on 87.7 FM would be a free service that would not require a subscription fee, the first criteria would not apply. However, if the licensee receives compensation in return for transmitting material (other than commercial advertisements to support a free program service), then the PCPC does not oppose a five percent fee on such revenues to the extent the FCC has the statutory authority to impose such a fee.

IV. CONCLUSION

For the reasons set forth above, the Commission should preserve the ability of listeners to receive valued audio services on 87.7 FM by expeditiously authorizing currently operating analog channel 6 LPTV stations to transmit an analog audio carrier on 87.7 FM after the LPTV digital transition as set forth in greater detail herein.

Respectfully submitted,

HOMBRE NUEVO INC DBA GUADALUPE RADIO

By: /s/ René Heredia /s/
René Heredia
Executive Director

METRO TV, INC.

By: /s/ Craig Fox /s/
Craig Fox
President

SIGNAL ABOVE, LLC

By: /s/ A. Wray Fitch III /s/
A. Wray Fitch III
Its Attorney

SYNCOM MEDIA GROUP, INC.

By: /s/ J. Christopher Blair /s/
J. Christopher Blair
President

VENTURE TECHNOLOGIES GROUP, LLC

By: /s/ Paul Koplin /s/
Paul Koplin
Chief Executive Officer

WEIGEL BROADCASTING CO.

By: /s/ Evan Fieldman /s/
Evan Fieldman
Vice President

January 22, 2020

EXHIBIT A

Licensed and Operating Channel 6 Analog LPTV/TV Translator Stations
(as of 01/22/2020)

Call Sign	Facility ID	City	State	Service	Licensee Name
WXXW-LP	129224	BINGHAMTON	NY	Low Power Analog TV	JOHNSON BROADCASTING COMPANY, INC.
WNDR-LP	41364	AUBURN	NY	Analog TV Translator	RENARD COMMUNICATIONS CORP.
K06DR	8738	SPRING GLEN, ETC.	UT	Analog TV Translator	CARBON COUNTY
K06JU	22067	HOWARD	MT	Analog TV Translator	FORSYTH T.V. TAX DISTRICT
K06FT	52137	PENASCO	NM	Analog TV Translator	KOB-TV, LLC
KBFW-LP	127887	ARLINGTON	TX	Low Power Analog TV	GERALD BENAVIDES
WVOA-LP	14319	WESTVALE	NY	Low Power Analog TV	METRO TV, INC.
WJMF-LP	26253	JACKSON	MS	Low Power Analog TV	KID'S TELEVISION, LLC
W06AQ	56535	BAT CAVE, ETC.	NC	Low Power Analog TV	WLOS LICENSEE, LLC
W06AN	56547	SAPPHIRE VALLEY,ETC.	NC	Low Power Analog TV	WLOS LICENSEE, LLC
WDCN-LP	20450	FAIRFAX	VA	Low Power Analog TV	SIGNAL ABOVE LLC
WRME-LP	128239	CHICAGO	IL	Low Power Analog TV	WLFM, LLC
WHDY-LP	130063	PANAMA CITY	FL	Low Power Analog TV	HISPANIC FAMILY CHRISTIAN NETWORK, INC
KBEX-LP	130089	AMARILLO	TX	Low Power Analog TV	VIVA MEDIA, LLC
WDDA-LP	131127	DALTON	GA	Low Power Analog TV	WORD OF GOD FELLOWSHIP, INC.
K06HZ	70591	PAONIA	CO	Analog TV Translator	NEXSTAR BROADCASTING, INC.
KCIO-LP	11529	VICTORVILLE	CA	Low Power Analog TV	OBIDIA PORRAS
KXKW-LP	33177	LAFAYETTE	LA	Low Power Analog TV	DELTA MEDIA CORPORATION
W06DD	129233	NATCHEZ	MS	Low Power Analog TV	FOSTER CHARITABLE FOUNDATION, INC.
WRTN-LP	125858	ALEXANDRIA	TN	Low Power Analog TV	RICHARD C & LISA A. GOETZ
WMTO-LP	127802	NORFOLK	VA	Low Power Analog TV	SYNCOM MEDIA GROUP, INC.
K06QA	130492	ODESSA	TX	Low Power Analog TV	CENTRO CRISTIANO DE VIDA ETERNA
K06NI	129153	THE DALLES	OR	Low Power Analog TV	MICHAEL MATTSON
K06KO	29168	KANARRAVILLE, ETC.	UT	Analog TV Translator	IRON COUNTY
K06KJ	41279	COLLBRAN	CO	Analog TV Translator	MESA COUNTY
K06FD	68334	LABARGE & BIG PINEY	WY	Analog TV Translator	CENTRAL WYOMING COLLEGE
KNNN-LP	129249	REDDING	CA	Low Power Analog TV	WALKER BROADCAST GROUP LLC
W06OD	56536	SPRUCE PINE	NC	Low Power Analog TV	WLOS LICENSEE, LLC
W06AL	56544	OTEEN/WARREN	NC	Low Power Analog TV	WLOS LICENSEE, LLC
KSHW-LP	60161	SHERIDAN	WY	Low Power Analog TV	LOVCOM, INC.
K06LP	62529	CIRCLE HOT SPRINGS	AK	Low Power Analog TV	STATE OF ALASKA
K06LG	62827	CHUATHBALUK	AK	Low Power Analog TV	STATE OF ALASKA
K06BI	11491	MANITOU SPRINGS	CO	Analog TV Translator	CITY OF MANITOU SPRINGS
KNIK-LP	21492	ANCHORAGE	AK	Low Power Analog TV	FIREWEED COMMUNICATIONS LLC
WNYZ-LP	56043	NEW YORK	NY	Low Power Analog TV	ISLAND BROADCASTING LLC
KXDP-LP	67552	DENVER	CO	Low Power Analog TV	SYNCOM MEDIA GROUP, INC.
KEFM-LP	127996	SACRAMENTO	CA	Low Power Analog TV	VENTURE TECHNOLOGIES GROUP, LLC
KFLZ-LP	40782	SAN ANTONIO	TX	Low Power Analog TV	B COMMUNICATIONS JOINT VENTURE
WOWZ-LP	130439	SALISBURY	MD	Low Power Analog TV	SIGNAL ABOVE LLC
KRPE-LP	129651	SAN DIEGO	CA	Low Power Analog TV	VENTURE TECHNOLOGIES GROUP, LLC
K06MM	58872	BLUFF	UT	Analog TV Translator	SAN JUAN COUNTY
WEYS-LP	6035	MIAMI	FL	Low Power Analog TV	ALMAVISION HISPANIC NETWORK, INC.
K06OY	2497	BAKER FLATS, ECT	WA	Low Power Analog TV	APPLE VALLEY TV ASSOCIATION, INC.
KZNO-LP	63149	BIG BEAR LAKE	CA	Low Power Analog TV	VENTURE TECHNOLOGIES GROUP LLC
KZFW-LP	5316	DALLAS	TX	Low Power Analog TV	CENTRAL PARK CHURCH OF GOD, INC.
KBKF-LP	127882	SAN JOSE	CA	Low Power Analog TV	VENTURE TECHNOLOGIES GROUP, LLC
WPGF-LP	23848	MEMPHIS	TN	Low Power Analog TV	George S Flinn , Jr .
KLOA-LP	28583	INYOKERN, ETC.	CA	Analog TV Translator	ROBERT D. ADELMAN
W06BH	25207	PHENIX CITY, ETC.	AL	Low Power Analog TV	GREENE COMMUNICATIONS, INC.
KGHD-LP	130027	LAS VEGAS	NV	Low Power Analog TV	OBIDIA PORRAS
W06AP	56534	MAGGIE VALLEY, ETC.	NC	Low Power Analog TV	WLOS LICENSEE, LLC

EXHIBIT B

ENGINEERING STATEMENT PREPARED IN SUPPORT OF COMMENTS

MEDIA BUREAU SEEKS TO UPDATE THE RECORD ON THE OPERATION OF ANALOG RADIO SERVICES BY DIGITAL LPTV STATIONS AS ANCILLARY OR SUPPLEMENTARY SERVICES

MB Docket No. 03-185

FILED BY PRESERVE COMMUNITY PROGRAMMING COALITION

JANUARY 2019

Summary

The following engineering statement has been prepared on behalf of a coalition of LPTV CH 6 Licensees Preserve Community Programming Coalition ("PCPC") which wishes to continue the historical provision of aural program content from LPTV CH 6 stations to the public after conversion from analog to DTV. The purpose of this document is to address technical questions raised by the FCC in the Public Notice cited above as released on December 4, 2019. Most importantly, this statement focuses on recommended practices to assure that supplementary analog radio signals can co-exist on a CH 6 licensed digital LPTV station without harming TV or FM reception. A basis for the presumption that operation can exist without harm is based on the affiant's observation and research concerning CH 6 DTV impact to signals in the adjacent NCE FM band over the first ten years of the DTV transition.

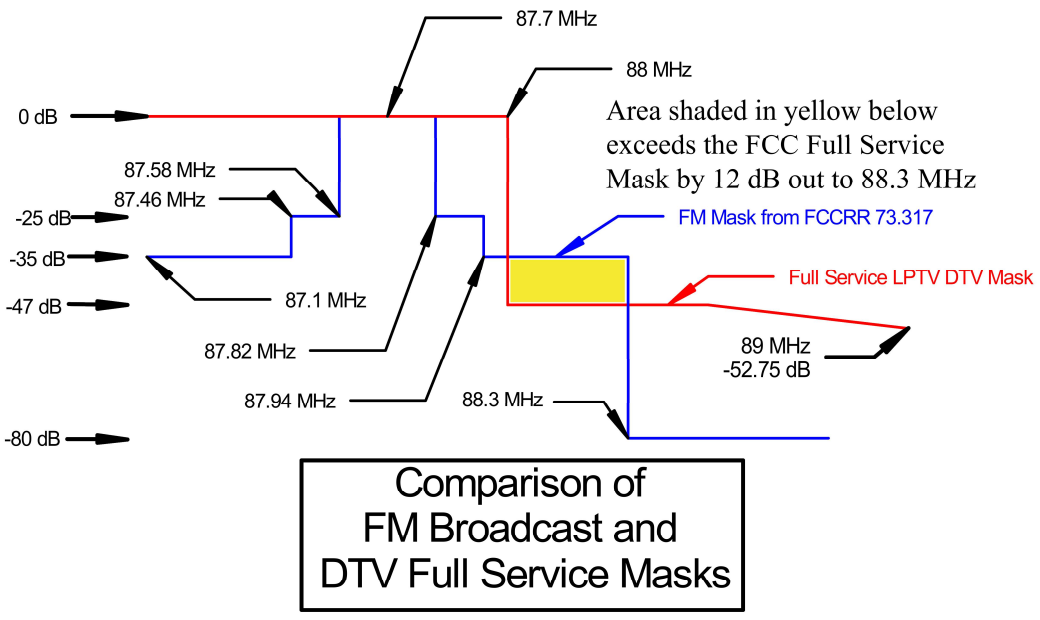
Historical Observations

It is our belief that FM stations operating in the 88.1 – 91.9 MHz NCE band have not been negatively impacted by adjacent channel interference from CH 6 DTV facilities as long as the DTV facility is operating properly and employs the ATSC Full Service Mask filter as defined in FCC rule section 74.794 (a)(2)iii ("Full Service Mask"). This conclusion is not our own and is shared by other engineering professionals. The primary reason for this is the steep attenuation of the CH 6 DTV emission as it approaches the lower edge of the FM band, 88.0 MHz as shown in this example of an all solid-state DTV transmitter alone and then the added mask filter attenuation:

	dB Below ERP	
FM Frequency	Transmitter	After Mask
87.5	-0.3	-0.4
87.75	-4.5	-4.7
88.0	-31.7	-32.0
88.25	-46.1	-46.8
88.5	-47.4	-49.5
89.0	-48.0	-57.2
90.0	-48.5	-73.7
91.0	-48.4	-87.1
92.0	-52	-104.1

Preventing analog CH 6 FM interference to NCE FM Band Stations

Taking a lesson from DTV transmitters which, like FM transmitters, have a specific emission shape when the transmitter is operating properly, FM signals transmitted on channel 6 can employ an additional narrow mask filter to prevent interference. Pasted in below is the FCC 73.317 emission mask for FM transmitters and overlaid with that is the Full Service Mask. There is an area shaded in yellow where the FCC 73.317 allowable emission level exceeds the Full Service Mask by 12 dB from 88.0 MHz – 88.3 MHz. By keeping the FM emissions inside the Full Service Mask should eliminate any possible interference between a channel 6 audio carrier and stations in the NCE FM band. Not only will adding a narrow analog FM mask filter serve to limit radiation from the FM signal into the adjacent NCE spectrum, but it will also limit the amount of ATSC 1.0 DTV signal entering the FM transmitter which can cause undesired emissions.



The FCC rules require that 53 kHz from the carrier frequency any frequency modulation of the main carrier due to the SCA operation shall be at least 60 dB below 100% modulation in the frequency range of 50 Hz to 53 kHz when stereo is transmitted. This figure must include spurious and intermodulation products as well as subcarrier sideband energy. It is PCPC's anticipation that the CH 6 analog ancillary audio service be fully stereo capable and employ any RDS services allowed by the FCC but no SCA services. This configuration would be expected to have a spectrum analyzer plot, for a properly operating analog transmitter, showing emissions 70 dB or greater below carrier level 60 kHz or more each side of the 87.7 MHz carrier. The benefit of the mask filter can be seen in the tabulation on the following page.

FM Frequency	dB Below ERP Transmitter	After Mask
87.7	-0.0	-0.45
87.76	-0.0	-0.45
87.8	-70	-70.875
87.9	-70	-82.434
88.1	-70	-104.905
89.5	-70	-107.477
90.0	-70	-109.462
91.0	-70	-112.454
92.0	-70	-114.689

Figures 1 – 3 attached depict three possible configurations that would allow the 87.7 MHz analog audio (or other FM content) and CH 6 DTV signals to be transmitted without causing impermissible interference to NCE FM stations and other DTV stations.

The configurations depicted on Figures 1 & 3 should allow stations currently operating with a common CH 6 FM antenna, transmission line and combiner to continue operation with the antenna feedline, combiner and analog transmitter. Figure 1 would require purchase of a new CH 6 DTV transmitter with full-service mask filter. VHF low band six pole Full Service Mask filters are of a size that they are normally installed outside the transmitter cabinet. A three pole, 12", cross coupled, cavity filter, see Appendix 1, would be installed at the output of the analog transmitter. Figure 3 would also require purchase of a new CH 6 DTV transmitter with Full Service Mask filter, but the filter would be installed after the combiner just before the transmission line. This approach provides approximately 25 dB of isolation between the FM transmitter and the DTV transmitter. The DTV mask filter would provide the desired protection to the NCE FM band, but testing would be required to confirm that the quality of the DTV and FM signals is not disturbed, or unwanted emissions generated.

The configuration in Figure 2 should allow stations who wish to operate with a CH 6 DTV transmitter with mask filter, transmission line and antenna and a separate analog FM audio transmitter with mask filter, transmission line and antenna to do so. Purchase of a new CH 6 DTV transmitter with Full Service Mask filter would be required on the DTV side and a new three pole, 12", cross coupled, cavity filter on the analog transmitter side. This approach requires adequate isolation between the two antennas and that isolation may be greater than the isolation level that could work with an analog CH 6 transmitter due to the bandwidth of the DTV emissions.

Based on discussion with manufacturers interleaved antennas such as those used for HD radio are not practical here since it is believed that the desire is for equal DTV and analog FM ERP which is expected to rule out the use of isolators. Stacking 2 or 3 bay, 0.5 wave spaced, CH 6 DTV and CH 6 analog antennas, one antenna above the other, at enough spacing to obtain the required isolation should however work well.

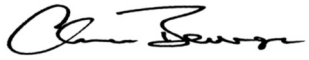
Recommended 3 Cavity Narrow Pass Band 87.7 MHz FM Filter

Appendix 1 contains plotted and tabulated response for a bandpass filter centered on 87.7 MHz with insertion loss of less than 0.5 dB, 3 cavities, 12", are employed with cross coupling. The attenuation plus and minus 100 kHz of 87.7 MHz does not exceed 0.5 dB assuring quality FM stereo and RDS transmission. Attenuation at 88 MHz is 32 dB and attenuation at 88.1 MHz is 35 dB. This level of attenuation, when added to the typical sideband attenuation of a properly operating analog transmitter, should substantially exceed the DTV mask as depicted in the tabulation at the top of page 3.

Conclusion

This study has been conducted for purposes of presenting information concerning the configuration of CH 6 DTV with a supplemental analog FM signal. It is hoped that this information will allow Reply Comments that address the importance of proper system filtering sufficient to allow the proposed service to operate without interference both caused and received.

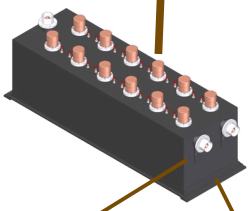
The foregoing was prepared on behalf of Preserve Community Programming Coalition by Clarence M. Beverage of *Communications Technologies, Inc.*, Marlton, New Jersey, whose qualifications are a matter of record with the Federal Communications Commission. The statements herein are true and correct of his own knowledge, except such statements made on information and belief, and as to these statements he believes them to be true and correct.



Clarence M. Beverage
for Communications Technologies, Inc.
Marlton, New Jersey

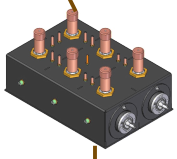
January 16, 2020

Antenna



3 dB Combiner

DTV Full
Service Mask
Filter



FM Bandpass
Filter

DTV Transmitter

FM Transmitter

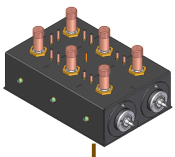
CH 6 Consortium
FM Analog with CH 6 DTV
Figure 1

DTV Antenna

Analog FM Antenna

DTV Full Service Mask Filter

DTV Transmitter



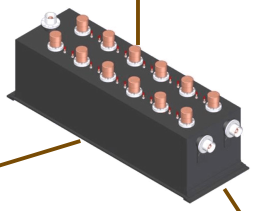
FM Bandpass Filter

FM Transmitter

CH 6 Consortium
FM Analog with CH 6 DTV
Figure 2

Antenna

DTV Full
Service Mask
Filter



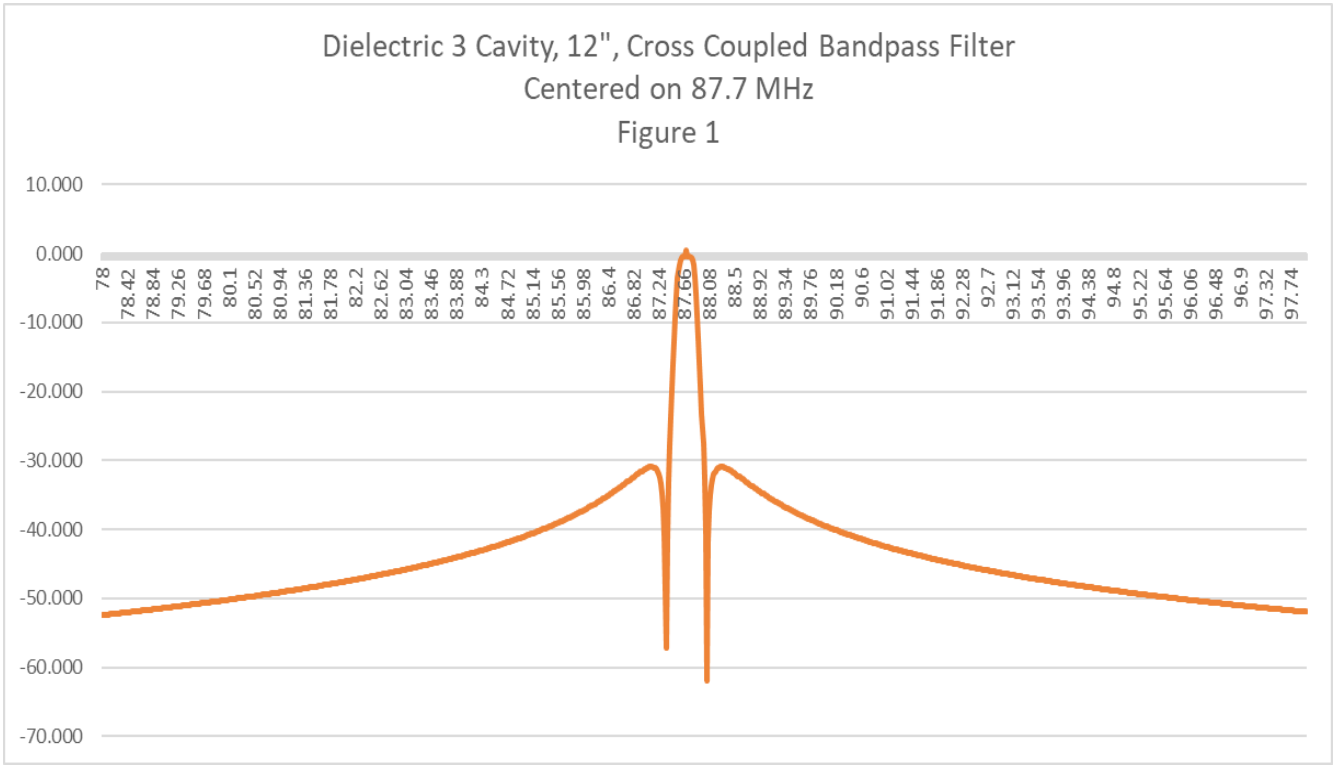
3 dB Combiner

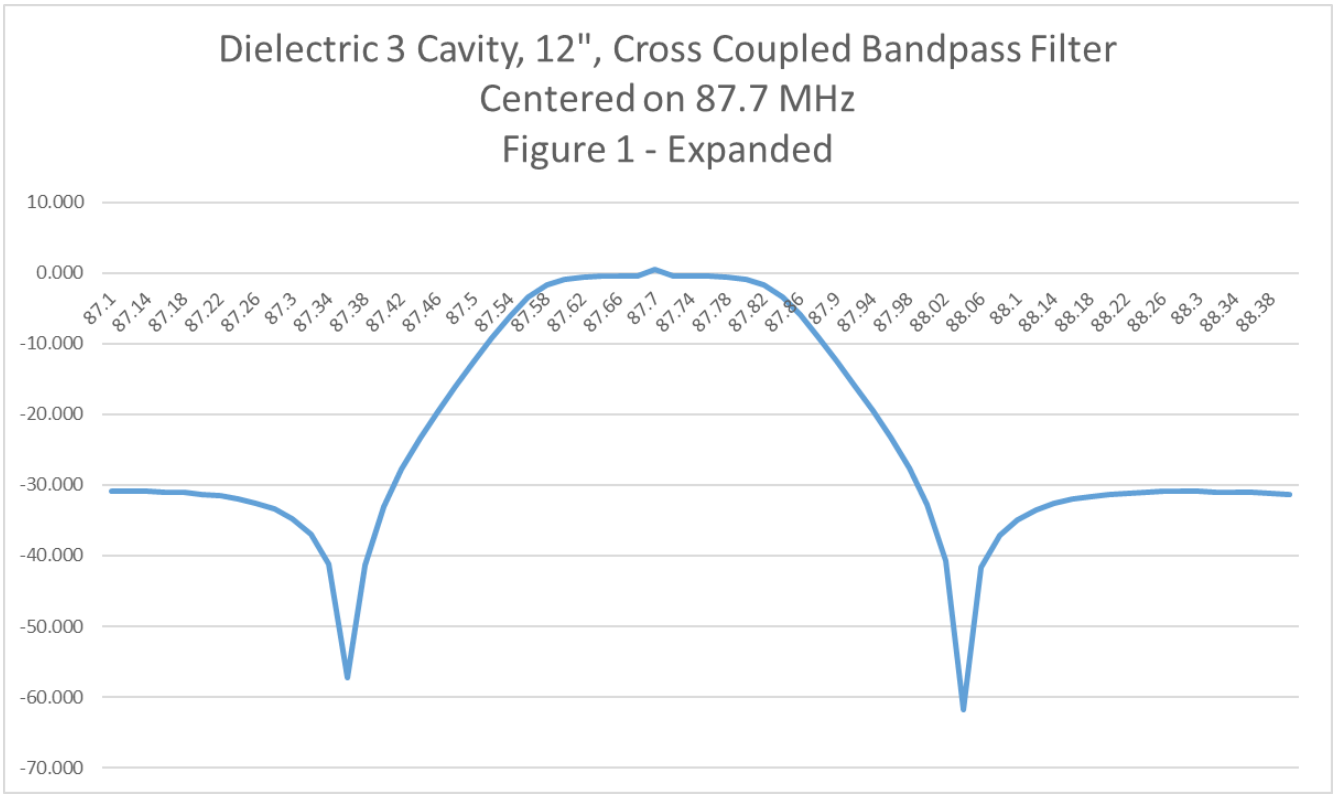
DTV Transmitter

FM Transmitter

CH 6 Consortium
FM Analog with CH 6 DTV
Figure 3

APPENDIX 1


Dielectric 3 Cavity, 12", Cross Coupled Bandpass Filter
Centered on 87.7 MHz
Figure 1
10.000
0.000
-10.000
-20.000
-30.000
-40.000
-50.000
-60.000
-70.000
78
78.42
78.84
79.26
79.68
80.1
80.52
80.94
81.36
81.78
82.2
82.62
83.04
83.46
83.88
84.3
84.72
85.14
85.56
85.98
86.4
86.82
87.24
87.66
88.08
88.5
88.92
89.34
89.76
90.18
90.6
91.02
91.44
91.86
92.28
92.7
93.12
93.54
93.96
94.38
94.8
95.22
95.64
96.06
96.48
96.9
97.32
97.74


Dielectric 3 Cavity, 12", Cross Coupled Bandpass Filter
Centered on 87.7 MHz
Figure 1 - Expanded
10.000
0.000
-10.000
-20.000
-30.000
-40.000
-50.000
-60.000
-70.000
87.1
87.14
87.18
87.22
87.26
87.3
87.34
87.38
87.42
87.46
87.5
87.54
87.58
87.62
87.66
87.7
87.74
87.78
87.82
87.86
87.9
87.94
87.98
88.02
88.06
88.1
88.14
88.18
88.22
88.26
88.3
88.34
88.38

APPENDIX 1

Frequency MHz	Attenuation dB	Frequency MHz	Attenuation dB
78	-52.419	78.9	-51.523
78.02	-52.400	78.92	-51.502
78.04	-52.381	78.94	-51.481
78.06	-52.362	78.96	-51.460
78.08	-52.342	78.98	-51.439
78.1	-52.323	79	-51.418
78.12	-52.304	79.02	-51.397
78.14	-52.285	79.04	-51.376
78.16	-52.265	79.06	-51.354
78.18	-52.246	79.08	-51.333
78.2	-52.227	79.1	-51.312
78.22	-52.207	79.12	-51.291
78.24	-52.188	79.14	-51.269
78.26	-52.168	79.16	-51.248
78.28	-52.149	79.18	-51.226
78.3	-52.129	79.2	-51.205
78.32	-52.109	79.22	-51.183
78.34	-52.090	79.24	-51.162
78.36	-52.070	79.26	-51.140
78.38	-52.050	79.28	-51.118
78.4	-52.031	79.3	-51.097
78.42	-52.011	79.32	-51.075
78.44	-51.991	79.34	-51.053
78.46	-51.971	79.36	-51.031
78.48	-51.951	79.38	-51.009
78.5	-51.931	79.4	-50.987
78.52	-51.911	79.42	-50.965
78.54	-51.891	79.44	-50.943
78.56	-51.871	79.46	-50.921
78.58	-51.851	79.48	-50.899
78.6	-51.830	79.5	-50.877
78.62	-51.810	79.52	-50.854
78.64	-51.790	79.54	-50.832
78.66	-51.770	79.56	-50.809
78.68	-51.749	79.58	-50.787
78.7	-51.729	79.6	-50.765
78.72	-51.709	79.62	-50.742
78.74	-51.688	79.64	-50.719
78.76	-51.668	79.66	-50.697
78.78	-51.647	79.68	-50.674
78.8	-51.626	79.7	-50.651
78.82	-51.606	79.72	-50.628
78.84	-51.585	79.74	-50.606
78.86	-51.564	79.76	-50.583
78.88	-51.543	79.78	-50.560

APPENDIX 1

Frequency MHz	Attenuation dB	Frequency MHz	Attenuation dB
79.8	-50.537	80.7	-49.439
79.82	-50.514	80.72	-49.413
79.84	-50.490	80.74	-49.387
79.86	-50.467	80.76	-49.361
79.88	-50.444	80.78	-49.335
79.9	-50.421	80.8	-49.309
79.92	-50.397	80.82	-49.283
79.94	-50.374	80.84	-49.257
79.96	-50.350	80.86	-49.230
79.98	-50.327	80.88	-49.204
80	-50.303	80.9	-49.177
80.02	-50.280	80.92	-49.151
80.04	-50.256	80.94	-49.124
80.06	-50.232	80.96	-49.097
80.08	-50.208	80.98	-49.071
80.1	-50.185	81	-49.044
80.12	-50.161	81.02	-49.017
80.14	-50.137	81.04	-48.990
80.16	-50.113	81.06	-48.963
80.18	-50.088	81.08	-48.936
80.2	-50.064	81.1	-48.908
80.22	-50.040	81.12	-48.881
80.24	-50.016	81.14	-48.853
80.26	-49.991	81.16	-48.826
80.28	-49.967	81.18	-48.798
80.3	-49.942	81.2	-48.771
80.32	-49.918	81.22	-48.743
80.34	-49.893	81.24	-48.715
80.36	-49.869	81.26	-48.687
80.38	-49.844	81.28	-48.659
80.4	-49.819	81.3	-48.631
80.42	-49.794	81.32	-48.603
80.44	-49.769	81.34	-48.575
80.46	-49.744	81.36	-48.546
80.48	-49.719	81.38	-48.518
80.5	-49.694	81.4	-48.490
80.52	-49.669	81.42	-48.461
80.54	-49.644	81.44	-48.432
80.56	-49.618	81.46	-48.404
80.58	-49.593	81.48	-48.375
80.6	-49.568	81.5	-48.346
80.62	-49.542	81.52	-48.317
80.64	-49.516	81.54	-48.288
80.66	-49.491	81.56	-48.259
80.68	-49.465	81.58	-48.229

APPENDIX 1

Frequency MHz	Attenuation dB	Frequency MHz	Attenuation dB
81.6	-48.200	82.5	-46.774
81.62	-48.170	82.52	-46.739
81.64	-48.141	82.54	-46.705
81.66	-48.111	82.56	-46.670
81.68	-48.082	82.58	-46.636
81.7	-48.052	82.6	-46.601
81.72	-48.022	82.62	-46.566
81.74	-47.992	82.64	-46.531
81.76	-47.962	82.66	-46.496
81.78	-47.931	82.68	-46.460
81.8	-47.901	82.7	-46.425
81.82	-47.871	82.72	-46.389
81.84	-47.840	82.74	-46.354
81.86	-47.810	82.76	-46.318
81.88	-47.779	82.78	-46.282
81.9	-47.748	82.8	-46.246
81.92	-47.717	82.82	-46.209
81.94	-47.686	82.84	-46.173
81.96	-47.655	82.86	-46.136
81.98	-47.624	82.88	-46.100
82	-47.592	82.9	-46.063
82.02	-47.561	82.92	-46.026
82.04	-47.530	82.94	-45.989
82.06	-47.498	82.96	-45.951
82.08	-47.466	82.98	-45.914
82.1	-47.434	83	-45.876
82.12	-47.402	83.02	-45.839
82.14	-47.370	83.04	-45.801
82.16	-47.338	83.06	-45.763
82.18	-47.306	83.08	-45.724
82.2	-47.273	83.1	-45.686
82.22	-47.241	83.12	-45.647
82.24	-47.208	83.14	-45.609
82.26	-47.176	83.16	-45.570
82.28	-47.143	83.18	-45.531
82.3	-47.110	83.2	-45.492
82.32	-47.077	83.22	-45.452
82.34	-47.044	83.24	-45.413
82.36	-47.010	83.26	-45.373
82.38	-46.977	83.28	-45.333
82.4	-46.943	83.3	-45.293
82.42	-46.910	83.32	-45.253
82.44	-46.876	83.34	-45.213
82.46	-46.842	83.36	-45.172
82.48	-46.808	83.38	-45.132

APPENDIX 1

Frequency MHz	Attenuation dB	Frequency MHz	Attenuation dB
83.4	-45.091	84.3	-43.034
83.42	-45.050	84.32	-42.983
83.44	-45.008	84.34	-42.931
83.46	-44.967	84.36	-42.879
83.48	-44.925	84.38	-42.827
83.5	-44.883	84.4	-42.775
83.52	-44.841	84.42	-42.722
83.54	-44.799	84.44	-42.669
83.56	-44.757	84.46	-42.615
83.58	-44.714	84.48	-42.562
83.6	-44.671	84.5	-42.508
83.62	-44.628	84.52	-42.453
83.64	-44.585	84.54	-42.399
83.66	-44.542	84.56	-42.344
83.68	-44.498	84.58	-42.288
83.7	-44.454	84.6	-42.233
83.72	-44.410	84.62	-42.177
83.74	-44.366	84.64	-42.120
83.76	-44.322	84.66	-42.064
83.78	-44.277	84.68	-42.007
83.8	-44.232	84.7	-41.949
83.82	-44.187	84.72	-41.892
83.84	-44.142	84.74	-41.834
83.86	-44.096	84.76	-41.775
83.88	-44.051	84.78	-41.716
83.9	-44.005	84.8	-41.657
83.92	-43.959	84.82	-41.598
83.94	-43.912	84.84	-41.538
83.96	-43.865	84.86	-41.477
83.98	-43.819	84.88	-41.417
84	-43.771	84.9	-41.356
84.02	-43.724	84.92	-41.294
84.04	-43.676	84.94	-41.232
84.06	-43.629	84.96	-41.170
84.08	-43.580	84.98	-41.107
84.1	-43.532	85	-41.044
84.12	-43.483	85.02	-40.980
84.14	-43.435	85.04	-40.916
84.16	-43.385	85.06	-40.852
84.18	-43.336	85.08	-40.787
84.2	-43.286	85.1	-40.721
84.22	-43.236	85.12	-40.655
84.24	-43.186	85.14	-40.589
84.26	-43.136	85.16	-40.522
84.28	-43.085	85.18	-40.455

APPENDIX 1

Frequency MHz	Attenuation dB	Frequency MHz	Attenuation dB
85.2	-40.387	86.1	-36.691
85.22	-40.319	86.12	-36.591
85.24	-40.250	86.14	-36.490
85.26	-40.181	86.16	-36.387
85.28	-40.111	86.18	-36.284
85.3	-40.040	86.2	-36.180
85.32	-39.970	86.22	-36.074
85.34	-39.898	86.24	-35.968
85.36	-39.826	86.26	-35.860
85.38	-39.754	86.28	-35.751
85.4	-39.681	86.3	-35.642
85.42	-39.607	86.32	-35.531
85.44	-39.533	86.34	-35.419
85.46	-39.458	86.36	-35.306
85.48	-39.382	86.38	-35.192
85.5	-39.306	86.4	-35.076
85.52	-39.230	86.42	-34.960
85.54	-39.152	86.44	-34.842
85.56	-39.075	86.46	-34.723
85.58	-38.996	86.48	-34.603
85.6	-38.917	86.5	-34.482
85.62	-38.837	86.52	-34.360
85.64	-38.756	86.54	-34.236
85.66	-38.675	86.56	-34.112
85.68	-38.593	86.58	-33.986
85.7	-38.511	86.6	-33.860
85.72	-38.427	86.62	-33.732
85.74	-38.343	86.64	-33.603
85.76	-38.258	86.66	-33.474
85.78	-38.173	86.68	-33.343
85.8	-38.087	86.7	-33.212
85.82	-37.999	86.72	-33.081
85.84	-37.912	86.74	-32.948
85.86	-37.823	86.76	-32.816
85.88	-37.733	86.78	-32.683
85.9	-37.643	86.8	-32.550
85.92	-37.552	86.82	-32.417
85.94	-37.460	86.84	-32.285
85.96	-37.367	86.86	-32.154
85.98	-37.273	86.88	-32.024
86	-37.178	86.9	-31.897
86.02	-37.083	86.92	-31.771
86.04	-36.986	86.94	-31.649
86.06	-36.889	86.96	-31.530
86.08	-36.791	86.98	-31.417

APPENDIX 1

Frequency MHz	Attenuation dB
87	-31.311
87.02	-31.212
87.04	-31.123
87.06	-31.047
87.08	-30.987
87.1	-30.946
87.12	-30.930
87.14	-30.945
87.16	-31.001
87.18	-31.109
87.2	-31.287
87.22	-31.558
87.24	-31.959
87.26	-32.547
87.28	-33.418
87.3	-34.751
87.32	-36.941
87.34	-41.163
87.36	-57.226
87.38	-41.308
87.4	-33.063
87.42	-27.738
87.44	-23.435
87.46	-19.601
87.48	-15.997
87.5	-12.513
87.52	-9.139
87.54	-6.003
87.56	-3.416
87.58	-1.710
87.6	-0.880
87.62	-0.583
87.64	-0.497
87.66	-0.466
87.68	-0.447
87.7	-0.447
87.72	-0.447
87.74	-0.466
87.76	-0.496
87.78	-0.582
87.8	-0.875
87.82	-1.698
87.84	-3.390
87.86	-5.959
87.9	-12.434
87.92	-15.899
87.94	-19.479
87.96	-23.280
87.98	-27.530
88	-32.748
88.02	-40.646
88.04	-61.825
88.06	-41.643
88.08	-37.182
88.1	-34.905
88.12	-33.526
88.14	-32.626
88.16	-32.018
88.18	-31.602
88.2	-31.319
88.22	-31.131
88.24	-31.014
88.26	-30.951
88.28	-30.930
88.3	-30.940
88.32	-30.976
88.34	-31.031
88.36	-31.103
88.38	-31.187
88.4	-31.282
88.42	-31.385
88.44	-31.494
88.46	-31.609
88.48	-31.728
88.5	-31.851
88.52	-31.975
88.54	-32.102
88.56	-32.230
88.58	-32.359
88.6	-32.489
88.62	-32.619
88.64	-32.749
88.66	-32.879
88.68	-33.009
88.7	-33.138
88.72	-33.266
88.74	-33.394
88.76	-33.521
88.78	-33.647

APPENDIX 1

Frequency MHz	Attenuation dB	Frequency MHz	Attenuation dB
88.8	-33.772	89.7	-38.324
88.82	-33.897	89.72	-38.404
88.84	-34.020	89.74	-38.484
88.86	-34.142	89.76	-38.563
88.88	-34.263	89.78	-38.642
88.9	-34.383	89.8	-38.719
88.92	-34.502	89.82	-38.797
88.94	-34.619	89.84	-38.873
88.96	-34.736	89.86	-38.949
88.98	-34.851	89.88	-39.024
89	-34.965	89.9	-39.099
89.02	-35.078	89.92	-39.173
89.04	-35.190	89.94	-39.246
89.06	-35.301	89.96	-39.319
89.08	-35.411	89.98	-39.391
89.1	-35.520	90	-39.462
89.12	-35.627	90.02	-39.533
89.14	-35.733	90.04	-39.604
89.16	-35.839	90.06	-39.674
89.18	-35.943	90.08	-39.743
89.2	-36.046	90.1	-39.812
89.22	-36.148	90.12	-39.880
89.24	-36.250	90.14	-39.948
89.26	-36.350	90.16	-40.015
89.28	-36.449	90.18	-40.082
89.3	-36.547	90.2	-40.148
89.32	-36.644	90.22	-40.214
89.34	-36.740	90.24	-40.279
89.36	-36.836	90.26	-40.344
89.38	-36.930	90.28	-40.408
89.4	-37.023	90.3	-40.472
89.42	-37.116	90.32	-40.535
89.44	-37.208	90.34	-40.598
89.46	-37.298	90.36	-40.661
89.48	-37.388	90.38	-40.723
89.5	-37.477	90.4	-40.784
89.52	-37.565	90.42	-40.846
89.54	-37.653	90.44	-40.906
89.56	-37.739	90.46	-40.967
89.58	-37.825	90.48	-41.026
89.6	-37.910	90.5	-41.086
89.62	-37.994	90.52	-41.145
89.64	-38.078	90.54	-41.204
89.66	-38.161	90.56	-41.262
89.68	-38.243	90.58	-41.320

APPENDIX 1

Frequency MHz	Attenuation dB	Frequency MHz	Attenuation dB
90.6	-41.377	91.5	-43.634
90.62	-41.435	91.52	-43.678
90.64	-41.491	91.54	-43.721
90.66	-41.548	91.56	-43.765
90.68	-41.604	91.58	-43.808
90.7	-41.659	91.6	-43.851
90.72	-41.715	91.62	-43.894
90.74	-41.770	91.64	-43.937
90.76	-41.824	91.66	-43.979
90.78	-41.879	91.68	-44.021
90.8	-41.933	91.7	-44.063
90.82	-41.986	91.72	-44.105
90.84	-42.039	91.74	-44.147
90.86	-42.092	91.76	-44.188
90.88	-42.145	91.78	-44.229
90.9	-42.197	91.8	-44.270
90.92	-42.249	91.82	-44.311
90.94	-42.301	91.84	-44.351
90.96	-42.352	91.86	-44.392
90.98	-42.403	91.88	-44.432
91	-42.454	91.9	-44.472
91.02	-42.505	91.92	-44.512
91.04	-42.555	91.94	-44.551
91.06	-42.605	91.96	-44.591
91.08	-42.654	91.98	-44.630
91.1	-42.703	92	-44.669
91.12	-42.752	92.02	-44.708
91.14	-42.801	92.04	-44.747
91.16	-42.850	92.06	-44.785
91.18	-42.898	92.08	-44.824
91.2	-42.946	92.1	-44.862
91.22	-42.993	92.12	-44.900
91.24	-43.041	92.14	-44.938
91.26	-43.088	92.16	-44.975
91.28	-43.135	92.18	-45.013
91.3	-43.181	92.2	-45.050
91.32	-43.228	92.22	-45.087
91.34	-43.274	92.24	-45.124
91.36	-43.320	92.26	-45.161
91.38	-43.365	92.28	-45.198
91.4	-43.411	92.3	-45.234
91.42	-43.456	92.32	-45.271
91.44	-43.501	92.34	-45.307
91.46	-43.545	92.36	-45.343
91.48	-43.590	92.38	-45.379

APPENDIX 1

Frequency MHz	Attenuation dB	Frequency MHz	Attenuation dB
92.4	-45.415	93.3	-46.882
92.42	-45.450	93.32	-46.912
92.44	-45.486	93.34	-46.942
92.46	-45.521	93.36	-46.971
92.48	-45.556	93.38	-47.001
92.5	-45.591	93.4	-47.030
92.52	-45.626	93.42	-47.060
92.54	-45.661	93.44	-47.089
92.56	-45.695	93.46	-47.118
92.58	-45.730	93.48	-47.147
92.6	-45.764	93.5	-47.176
92.62	-45.798	93.52	-47.205
92.64	-45.832	93.54	-47.233
92.66	-45.866	93.56	-47.262
92.68	-45.900	93.58	-47.290
92.7	-45.933	93.6	-47.319
92.72	-45.967	93.62	-47.347
92.74	-46.000	93.64	-47.375
92.76	-46.033	93.66	-47.404
92.78	-46.066	93.68	-47.432
92.8	-46.099	93.7	-47.459
92.82	-46.132	93.72	-47.487
92.84	-46.165	93.74	-47.515
92.86	-46.197	93.76	-47.543
92.88	-46.229	93.78	-47.570
92.9	-46.262	93.8	-47.598
92.92	-46.294	93.82	-47.625
92.94	-46.326	93.84	-47.652
92.96	-46.358	93.86	-47.679
92.98	-46.390	93.88	-47.707
93	-46.421	93.9	-47.734
93.02	-46.453	93.92	-47.760
93.04	-46.484	93.94	-47.787
93.06	-46.516	93.96	-47.814
93.08	-46.547	93.98	-47.841
93.1	-46.578	94	-47.867
93.12	-46.609	94.02	-47.894
93.14	-46.640	94.04	-47.920
93.16	-46.670	94.06	-47.946
93.18	-46.701	94.08	-47.973
93.2	-46.731	94.1	-47.999
93.22	-46.762	94.12	-48.025
93.24	-46.792	94.14	-48.051
93.26	-46.822	94.16	-48.077
93.28	-46.852	94.18	-48.103

APPENDIX 1

Frequency MHz	Attenuation dB	Frequency MHz	Attenuation dB
94.2	-48.128	95.1	-49.209
94.22	-48.154	95.12	-49.232
94.24	-48.179	95.14	-49.254
94.26	-48.205	95.16	-49.277
94.28	-48.230	95.18	-49.299
94.3	-48.256	95.2	-49.321
94.32	-48.281	95.22	-49.343
94.34	-48.306	95.24	-49.365
94.36	-48.331	95.26	-49.387
94.38	-48.356	95.28	-49.409
94.4	-48.381	95.3	-49.431
94.42	-48.406	95.32	-49.453
94.44	-48.431	95.34	-49.475
94.46	-48.456	95.36	-49.497
94.48	-48.480	95.38	-49.518
94.5	-48.505	95.4	-49.540
94.52	-48.529	95.42	-49.562
94.54	-48.554	95.44	-49.583
94.56	-48.578	95.46	-49.605
94.58	-48.602	95.48	-49.626
94.6	-48.627	95.5	-49.647
94.62	-48.651	95.52	-49.669
94.64	-48.675	95.54	-49.690
94.66	-48.699	95.56	-49.711
94.68	-48.723	95.58	-49.732
94.7	-48.747	95.6	-49.753
94.72	-48.770	95.62	-49.774
94.74	-48.794	95.64	-49.795
94.76	-48.818	95.66	-49.816
94.78	-48.841	95.68	-49.837
94.8	-48.865	95.7	-49.858
94.82	-48.888	95.72	-49.879
94.84	-48.912	95.74	-49.899
94.86	-48.935	95.76	-49.920
94.88	-48.958	95.78	-49.940
94.9	-48.981	95.8	-49.961
94.92	-49.004	95.82	-49.981
94.94	-49.027	95.84	-50.002
94.96	-49.050	95.86	-50.022
94.98	-49.073	95.88	-50.043
95	-49.096	95.9	-50.063
95.02	-49.119	95.92	-50.083
95.04	-49.142	95.94	-50.103
95.06	-49.164	95.96	-50.123
95.08	-49.187	95.98	-50.143

APPENDIX 1

Frequency MHz	Attenuation dB	Frequency MHz	Attenuation dB
96	-50.163	96.9	-51.016
96.02	-50.183	96.92	-51.034
96.04	-50.203	96.94	-51.052
96.06	-50.223	96.96	-51.070
96.08	-50.243	96.98	-51.088
96.1	-50.263	97	-51.106
96.12	-50.283	97.02	-51.123
96.14	-50.302	97.04	-51.141
96.16	-50.322	97.06	-51.159
96.18	-50.341	97.08	-51.177
96.2	-50.361	97.1	-51.194
96.22	-50.380	97.12	-51.212
96.24	-50.400	97.14	-51.229
96.26	-50.419	97.16	-51.247
96.28	-50.439	97.18	-51.264
96.3	-50.458	97.2	-51.282
96.32	-50.477	97.22	-51.299
96.34	-50.496	97.24	-51.316
96.36	-50.516	97.26	-51.334
96.38	-50.535	97.28	-51.351
96.4	-50.554	97.3	-51.368
96.42	-50.573	97.32	-51.385
96.44	-50.592	97.34	-51.402
96.46	-50.611	97.36	-51.419
96.48	-50.630	97.38	-51.437
96.5	-50.648	97.4	-51.454
96.52	-50.667	97.42	-51.471
96.54	-50.686	97.44	-51.488
96.56	-50.705	97.46	-51.504
96.58	-50.723	97.48	-51.521
96.6	-50.742	97.5	-51.538
96.62	-50.761	97.52	-51.555
96.64	-50.779	97.54	-51.572
96.66	-50.798	97.56	-51.589
96.68	-50.816	97.58	-51.605
96.7	-50.834	97.6	-51.622
96.72	-50.853	97.62	-51.639
96.74	-50.871	97.64	-51.655
96.76	-50.889	97.66	-51.672
96.78	-50.908	97.68	-51.688
96.8	-50.926	97.7	-51.705
96.82	-50.944	97.72	-51.721
96.84	-50.962	97.74	-51.738
96.86	-50.980	97.76	-51.754
96.88	-50.998	97.78	-51.771

APPENDIX 1

Frequency MHz	Attenuation dB	Frequency MHz	Attenuation dB
97.8	-51.787		
97.82	-51.803		
97.84	-51.819		
97.86	-51.836		
97.88	-51.852		
97.9	-51.868		
97.92	-51.884		
97.94	-51.900		
97.96	-51.916		
97.98	-51.932		
98	-51.948		